THE OIL WEEKLY

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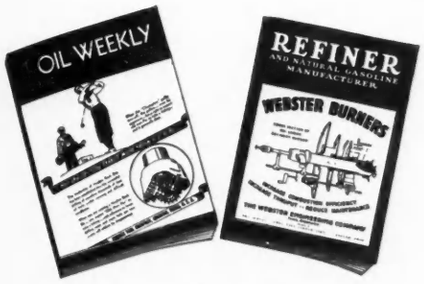

SPECIALIZED OIL JOURNALS
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The Oil Man's Calendar

JAN. 24	Governor Marland's Petroleum Conservation Conference of Oil State Governors, Hot Springs, Ark.
FEB. 15	A.P.I., East Texas Chapter, Kilgore, Texas.
14–18	American Institute of Mining and Metallurgical Engineers, Annual Meeting, New York.
17–18	Mid-Continent District, A.P.I., Division of Production, Amarillo, Tex.
MAR. 16–18	American Association of Petroleum Geologists, New Orleans.
21–25	Western Metal Congress, Biltmore Hotel, Los Angeles.
23–25	American Society of Mechanical Engineers, Los Angeles, Calif.
24–25	Southwestern District, A.P.I., Spring Meeting, Fort Worth, Texas.
APR. 13–15	Petroleum Industry Electrical Association, Rice Hotel, Houston.
19	A.P.I., Division of Production, Pacific Coast District, Spring Meeting, Biltmore Hotel, Los Angeles.
28–29	A.P.I., Eastern District, Division of Production, William Penn Hotel, Pittsburgh, Pennsylvania.
MAY 6–12	American Gas Association, Natural Gas Department, New Orleans, La.
11–13	Natural Gasoline Association of America, Hotel Tulsa, Tulsa.
12–14	National Oil Scouts Association of America, Tulsa, Oklahoma.
14–21	International Petroleum Exposition, Tulsa, Oklahoma.
23–25	A.P.I., Wichita, Kansas.

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Next Week

OUR 1938 FORECASTS

THE OIL WEEKLY of **January 31,** our 1938 Yearbook-Forecast Number, will set a new pace in oil journal editing.

IN THE FIRST PLACE, it will be almost wholly a **"Forecast" Issue,** with numerous articles looking ahead into the probable developments of 1938, and with relatively little space devoted to the dead past. The issue will be primarily a "forecast" issue—not a statistical issue.

IN THE SECOND PLACE, the issue will be more of a **"World Outlook" Number,** and less of a United States issue, than in former years. It will give a broad, world-scope picture of the oil industry's prospects for the coming year.

WORLD OUTLOOK.—As the reader turns the pages of the issue, he will find at the beginning, amid interesting photographs and charts, and under striking headings, an analysis of what is to be expected of the industry throughout the world in the coming year. The record of the past year will be presented only for its value in peering into the future, and its reference worth.

U. S. OUTLOOK.—A similar treatment will be given next of the particular outlook in the United States, which it is possible to discuss in the various important details. Again, 1937 results are given, but mainly as an aid in looking ahead. This story will give estimates of probable petroleum demand in 1938 and discuss markets, prices, earnings, etc.

LEGISLATION, LABOR, TAXES.—In addition, there will be special articles on various important economic subjects entering into the oil outlook for 1938, such as articles on: (1) Legislation that looms, (2) Labor situation, (3) Taxation trends.

PAUL PEEBLES.—For human interest, in a humorous vein, Paul Peebles will prognosticate . . . for 1938. More human interest will be embodied in the "Petroleum Panorama" of 1937, interpreting what happened in the past year.

OIL CONSUMPTION.—Photographs, charts, and tables will illustrate articles showing the consistently growing use of petroleum throughout the world. In pictures, the modern usage of oil will be shown, as in automobiles, buses, ships, tractors, airplanes, home heating, etc. Figures for past years will be included, for countries outside United States as well as for United States.

PRODUCTION.—Information and predictions on production, world and United States.

OIL RESERVES.—OIL WEEKLY pioneered in estimating oil reserves, and in this issue will carry on, injecting discussion of prospects for discoveries in 1938.

ENGINEERING PROGRESS.—Science moves on in the oil industry, and THE OIL WEEKLY keeps abreast, pointing out possible further progress just ahead as well as anayzing 1937 advancements in the various branches of the industry.

EXPENDITURES FORECAST.—Spending prospects for 1938: production, drilling, pipe line.

DRILLING.—A group of articles, looking ahead; led off by (1) a "forecast of drilling in 1938," based on nation-wide investigation by staff men. (2) Another article: "Deeper Drilling Looms," showing by chart and tables present records in deep drilling and producing. Complete list of 10,000-foot wells of the world. (3) Preview of 1938 Drilling, by districts; along with color maps showing 1937 discoveries. (4) Footage drilled in 1937, and average drilling depths by districts. (5) Details by counties and fields of 1937 well completions.

REFINING.—What changes in refining loom for 1938, particularly those affecting producers of crude oil.

TRANSPORTATION.—Illustrated articles on prospects regarding (1) pipe lines, (2) tankers, etc.

NATURAL GAS.—Illustrated article on use and production.

THE OIL WEEKLY
Post Office Box 2811, Houston, Texas

Part of the old Noble field, one of the new discoveries in Illinois last year that played an important part in reviving the state as an active operating district after 30 years of inactivity, is shown here.

The changing panorama

FROM the recent conferences of the President with business leaders, considerable encouragement has arisen among business men in general.

Those who manage industrial and commercial enterprises have gained some courage also from indications that Congress is willing, if not eager, to soft-pedal reform and to promote recovery.

Hopefulness in Oil Industry

In the oil industry, hopefulness has been well maintained, and various precautions have been taken, for the furtherance of stable conditions. Crude production control has been strict in recent months, and probably will continue so in February.

The gasoline situation has not been satisfactory, as stocks have been pushed out of line with market conditions. But refiners lately have been holding operations down in better conformity with the consumption trend. One major company has ordered reduction of runs at refineries of all its subsidiaries.

The oil industry thus is not merely hoping but also acting.

Consequently, its outlook is comparatively promising, although the industry ultimately may be carried along with the general business trend, whether up, down, or side-wise.

February Forecast Encouraging

There was a definite basis for hopefulness in the forecast made last week by the Bureau of Mines on demand for crude oil and gasoline in February.

The bureau estimated that domestic crude production of 3,438,200 barrels daily would be required in February, or 7 percent more than that needed in February last year.

The gasoline demand in February this year was estimated at 32,550,000 barrels, or 6 percent more than the "normal" demand of February last year. The actual demand of February, 1937 was abnormal, and consequently the February, 1938, estimate is only 2 percent above it.

It was estimated that motor fuel exports in February this year would total 3,200,000 barrels, or 600,000 barrels less than the January estimate, because of the shorter month and less optimistic reports from exporters.

The bureau forecast indicated an increase of at least 6,200,000 barrels in stocks of finished and unfinished gasoline for February. Benzol and "direct" sales and losses of natural gasoline were estimated at 900,000 barrels, making estimated production of gasoline 41,050,000 barrels.

Statistics About Same

Current statistics of the petroleum industry are closely similar to those for several weeks previously. Inventories of crude oil and fuel oil remain satisfactory and production of crude oil is low enough. Refinery operations have become better adjusted to market requirements. But gasoline stocks remain too large.

Despite all the first named advantages, the excessive gasoline stocks tend to darken the over-all picture.

Production Moderate

Crude oil production in the United States in the week ended January 15 averaged 3,476,000 barrels daily, according to the American Petroleum Institute. That was 9.3 percent more than in the comparable week a year ago, an increase largely justified by the

fact demand continues to hold above last year's levels.

Refinery operations now show an even better relationship to the market situation. Crude runs to stills averaged 3,240,000 barrels daily in the week ended January 15, or 6.4 percent more than in the similar week last year.

Crude Stocks Favorable

Storage of crude oil remains a relatively bright spot in the oil industry's situation. The inventories of crude aggregated 303,078,000 barrels on January 8, having declined a little further from the January 1 figure of 303,468,000 barrels. The crude stocks now are 5.3 percent larger than one year ago, showing therefore an increase within the year that is justified by increased demand.

Fuel oil stocks totaled 118,962 barrels January 15, the American Petroleum Institute reported, having changed but slightly in the week ended on that date. The fuel oil storage now is up to a level 13.5 percent higher than at this time last year. This indicates that supplies now are about in line with market requirements, as demand lately has been running about 15 percent above the trend of a year ago.

Gasoline Stocks Excessive

Gasoline storage in the week ended January 15 crossed the 80,000,000 barrel mark, in the sharp rise that has caused much anxiety. At the end of that week, the total inventories amounted to 80,947,000 barrels. The all time peak reached last spring, in late March, was only a little over 83,000,000 barrels. Consequently, a new all time record for gasoline stocks apparently lies only a week or two ahead.

In the week ended January 15 the gasoline stocks increased nearly 2,000,000 barrels.

They stood, at the end of that week, 21.6 percent higher than on the comparable date a year previously.

That large expansion in gasoline storage is not justified by the increase that has occurred, meanwhile, in gasoline consumption.

As indicated above, the Bureau of Mines has estimated that in February the demand for gasoline will be 6 percent larger than the "normal" demand of February last year. For several months the gasoline demand has been running only about 10 percent higher than the trend of a year previously.

Oil Market Conference

Considerable interest is centering on the conference of oil states governors at Hot Springs, Arkansas, January 24, sponsored by Governor E. W. Marland of Oklahoma, and intended to stabilize the oil industry's markets. At the meeting, the need for conserving oil reserves will be stressed.

The sponsor asked President Roosevelt to send a federal government observer to the conference, and the President replied as follows:

"Secretary Ickes has informed me that Mr. George W. Holland, director of the petroleum conservation division of the Department of the Interior, will attend the meeting, and that Mr. Holland will submit a complete report of the meeting, which I, in turn, will be glad to send to the Secretaries of Commerce and Navy."

Drilling

GROWTH of drilling volume in the K-M-A area in North Texas is being augmented by a series of outpost and wildcat tests. Meantime operators in the field are seeking methods by which drilling costs can be lowered.

A third oil producer from the Travis Peak at Cotton Valley has operators in that field on the verge of changing opinion that the deeper gas-distillate production is of more importance.

Indications that Jennings would be extended north looked bright last week when a new Oligocene sand was found. It is expected to revive drilling on the north flank of the field. Gas and distillate was shown again in a Jefferson Davis Parish wildcat when a production test was made.

Saxet Heights (Corpus Christi, Texas) has been drilled unprofitably close, but a new sand found 1000 feet below established production there now gives promise of making the area economically more attractive.

Production in the southwest portion of the Eunice field, New Mexico, is prolific but erratic. The Eunice-Monument connection area continues to yield large wells.

Extensions at Fairbanks, Harris County; Dickinson, Galveston County; Hastings, Brazoria County; Old Ocean, Brazoria County; and Katy, Waller County, were the outstanding developments in the Texas Gulf Coast last week.

Market briefs

Outlook—Markets have become steadier.

Crude Markets—Prices holding.

Refined Oil Markets — Gasoline prices now holding.

CURRENT OPERATIONS

Week Ended	Daily Crude Production	Daily Crude Runs to Stills
January 15	3,476,900	3,240,000
Previous week	3,437,100	3,210,000
Year ago	3,184,650	3,045,000

CRUDE STOCKS

Date	Crude Oil (Barrels)
January 2	303,078,000
Week before	303,294,000
Year ago	287,659,000

REFINED OIL STOCKS

Date	Gasoline (Barrels)	Gas & Fuel Oil (Barrels)
January 15	80,947,000	118,962,000
Week ago	79,331,000	119,146,000
Year ago	66,559,000	104,841,000

DRILLING

Period	Wells Completed
Past week	475
Previous week	470
Year ago	413
Year Total:	
This year	1,836
Last year	1,847

Technology

THE third and final installment of "Obtaining Maximum Production Through Efficient Operation of Sub-Surface Pumping Equipment" appears on page 20. In the two previous chapters, corrosion of underground equipment and destructive effects of bad adjustment have been discussed. In the present text is discussed the possibilities of increasing efficiency of pumps and consequently lowering lifting costs through minor adjustments of equipment or changes in manner of handling equipment.

The interesting article on "Prevention of Oil-Field Emulsions," which started in the preceding issue, is concluded in an installment appearing on page 30. In the opinion of the author the most important method in preventing of emulsions is to reduce the degree of agitation.

There have been many failures of equipment in the old fields of eastern Illinois, practically all due to the corrosive action of water lifted with the oil. In many instances severe attacks have been experienced. Today the action of these pernicious waters is being fought with modern cementing methods, which is described in an article starting on page 39.

Proration Picture

Texas orders all wells shut down for next six Sundays, although Bureau's report forecasts need for slightly more oil . . . Compact members warned stricter proration necessity . . . Arkansas doubles Schuler allowable.

THE move to curtail production of crude oil in the United States gained much ground last week. While the Interstate Oil Compact Commission was being warned stricter curtailment was necessary the Independent Petroleum Association of America was passing a resolution seeking lower allowable, the State of Texas took the lead in the movement by ordering all oil wells within its boundaries shut down for six consecutive Sundays beginning January 23.

Meanwhile, other states were being urged to follow the leadership of Texas. Whether they will do so or not will be determined in the coming week. Both the Oklahoma and Kansas conservation boards will hold statewide hearings during the week for the purpose of procuring information upon which to base their February allowable orders.

While there has been much agitation to curtail production so as to prevent further growth in gasoline inventories, which has grown too burdensome to be carried much longer, on the other hand the United States Bureau of Mines in its regular monthly forecast of consumption was seeing the need for slightly greater production. If the Bureau is correct in its estimates, the lower Texas allowable will mean that stocks will be drawn upon. Should refiners be able to restrict runs to stills and still met the demand for fuel oils, gasoline stocks will be reduced in February, which would again place the industry in a very stabilized condition.

The past week was one of the most eventful in proration circles in a long time. First the State of Texas held its regularly monthly statewide hearing, and heard evidence that additional curtailment was a necessity and that operators were generally willing to cut back. This was followed by the meeting of the Interstate Oil Compact Commission, where all states were urged to curtail further. On the same day, the Independent Petroleum Association of America executive committee was passing its resolution asking that production and refining operations be restricted some more. Then came the Texas February allowable order, which remained unchanged, but was accompanied by a special order requiring the shutting in of wells on Sunday.

Texas orders all wells shut down on Sunday

Texas Friday took the lead in the move to curtail production to consumer demand by ordering all oil wells in the state shut down for six consecutive Sundays beginning January 23. The commission estimated that the effect of this order would be to cut a total of 8,000,000 barrels from the allowable, or 1,333,000 barrels weekly.

Daily allowables under the new order remained unchanged, which eliminated the necessity for issuing an order providing for allowables for each individual field.

A second order was issued which is intended to enable gasoline plants and other concerns depending upon oil wells for their source of gas supply, to continue operations without interruption during the shutdown period. Under the plan set out in this order, operators of oil wells supplying gas for such purposes may produce some oil on Sunday but must not produce more than six-sevenths of the weekly allowable.

The same result will be accomplished through curtailment of daily allowables that is accomplished by closing the wells in for one day each week.

Under terms of this order, operators must make application to the commission and set out in full their reasons for the exception requested.

In order to take care of wells which must be produced continuously, the commission provided in a separate order that these wells may be produced, providing the operators do not take from the wells each week more than six times the daily allowable for the well. Thus each well which must be operated continuously may be produced only six-sevenths of its daily allowable.

Allowable slightly increased by bureau for February

Daily average supply of domestic crude estimated by the United States Bureau of Mines in its monthly forecast, issued January 18, to meet the demand in February is 3,438,200 barrels, which is 31,400 barrels more than the estimate for the current month, 110,600 barrels, or 3 percent, higher than actual output in February, 1937, and 7 percent above the demand for domestic crude in that month.

However, while the daily average is seen increased, total production for the coming month, on the basis of bureau forecasts, would be more than 9,000,000 barrels under January.

Crude production during the 4 weeks December 4 to January 1, the bureau pointed out, averaged about 3,451,000 barrels daily. Although crude stocks increased 434,000 barrels during that period, 418,000 barrels of the increase was in foreign stocks, which would make the production practically equivalent to the demand for domestic oil.

Motor-fuel demand for February is placed by the bureau at 32,550,000 barrels which, while only 2 percent above the apparent demand for February, 1937, is almost 6 percent above the estimated normal demand for that month.

Motor-fuel exports have been estimated at 3,200,000 barrels for the month, a decline of 600,000 barrels from the January estimate being foreseen because of the shorter month and on the basis of less optimistic reports from exporters.

Gasoline Stocks Mount

"Stocks of finished and unfinished gasoline amounted to 70,628,000 barrels on November 30, 1937," the report commented. "According to statistics of the American Petroleum Institute, they increased about 6,729,000 barrels during December, bringing them to approximately 77,400,000 barrels as of December 31, compared with 63,075,000 barrels on hand a year previous. The stocks of December 31, 1937, represent 60 days' supply, while those of December 31, 1936, represented 53 days' supply.

"During February, 1936 and 1937, finished gasoline stocks increased 9,144,000 barrels and 7,160,000 barrels, respectively, and the bureau anticipates that they will increase a minimum of 6,200,000 barrels during February, 1938, in conection with distillate production.

"The bureau wishes to emphasize that it is not recommending the above increase in stocks but is merely forecasting what may occur in the light of present conditions and past experience."

Benzol and direct sales, and losses of natural gasoline have been estimated at 900,000 barrels, making the estimated production of gasoline 41,050,000 barrels, the suggested allocation of this output among the several districts being as follows:

East Coast, 5,870,000 barrels; Appalachian, 1,370,000 barrels; Indiana-Illinois, 7,000,000 barrels; Oklahoma, 2,660,000 barrels; Kansas-Missouri, 2,290,000 barrels; Texas inland, 3,270,000 barrels; Texas Gulf, 9,280,000 barrels; Louisiana Gulf, 1,240,000 barrels; North Louisiana-Arkansas, 820,000 barrels; Rocky Mountain, 1,040,000 barrels; California, 6,210,000 barrels.

Natural gasoline consumption at refineries for the coming month is placed at 6.2 percent of the total gasoline required, or 2,550,000 barrels. The yield of straight-run and cracked gasoline is estimated at 43 percent, or the same as for the current month. Application of this yield to the estimated straight-run and cracked gasoline production of 38,500,000 barrels gives refinery crude-oil requirements as 89,570,000 barrels, or 3,199,000 barrels daily.

Foreign crude run to stills is estimated at 2,100,000 barrels; crude-oil exports are placed at 6,000,000 barrels, the same as estimated for January, and the estimate for crude burned as fuel

Estimated Crude Oil Requirements by States*

(Daily averages in barrels)

STATE	Forecast February, 1938	Forecast January, 1938	Actual Production November, 1937
Texas	1,365,700	1,350,900	1,354,000
California	693,700	678,300	702,000
Oklahoma	569,700	566,600	579,800
Louisiana	239,400	238,400	238,700
Kansas	176,400	179,300	186,400
New Mexico	105,100	103,100	106,900
Michigan	52,800	54,100	54,000
Wyoming	51,800	55,500	52,800
Pennsylvania	50,400	51,000	53,600
Arkansas	36,800	35,200	42,900
Illinois	29,900	27,400	33,000
Kentucky	14,500	14,300	14,600
New York	14,000	13,900	15,100
Montana	12,400	13,100	13,800
West Virginia	10,000	9,600	10,200
Ohio	9,000	9,500	9,100
Colorado	4,400	4,300	4,400
Indiana	2,200	2,300	2,200
	3,438,200	3,406,800	3,473,500

* The estimates in this table have been calculated as the market demand requirements for the months stated and are not intended to be calculations of daily average demand for the current year or for any period other than the months stated. As no changes in crude-oil stocks are involved in these estimates, they represent demand rather than production.

and losses has been reduced to 2,800,000 barrels.

Application of the usual methods of computation to total estimated market demand for domestic crude gives quotas for the various producing states as shown in the accompanying table, as compared with the forecast for January and actual production in November, last.

Interstate Compact warned reduced production needed

For its quarterly meeting in Oklahoma City, January 18, the Interstate Oil Compact Commission had its collective ear packed full of warning to the effect that the petroleum industry has immediate need for a reduction in daily output at least five percent below recommendations of the United States Bureau of Mines. The objective is to reduce storage totals to a level comparable with January 1, 1937.

Although prices are taboo at Compact sessions, the presence of so many state conservation officials, association representatives, oil producers and observers left the impression that there is apprehension concerning the price of crude oil.

The storage situation and the need for reduced output were presented by Charles F. Roeser, Fort Worth, president of the Independent Petroleum Association of America, who said:

"During 1937 the industry added to its crude oil in storage by 15,000,000 barrels and to its gasoline stocks by 10,000,000 barrels. This gasoline came from roughly 30,000,000 barrels of crude oil. In effect the industry produced 45,000,000 barrels too much crude oil in 1937.

"A year ago the industry was in strong statistical position. Additions to storage have damaged this position. Unless there is a check in output, gasoline stocks will reach 90,000,000 barrels by April 1.

"This can be corrected by the industry under the statutes of the several states. Producers are willing to cooperate. Excessive oil stored above ground is a waste. By cutting production back five percent above the demand estimates of the Bureau of Mines, waste can be prevented, while the industry as well as the public will benefit."

Here Colonel E. O. Thompson, chairman of the compact asked:

"Isn't what you suggest in line with what President Roosevelt wants in the way of a program between government and industry?"

"It is exactly in line," Roeser replied.

"And," Thompson continued, "isn't the country going into some sort of business depression?"

"I think every business man recognizes that," said Roeser.

Some States Exceed Quota

Tom Anglin, who represents Oklahoma's Governor Marland on the commission then offered for the record a tabulation of production by states during the first 10 months of 1937 to show where production had exceeded estimates of demand by the Bureau of Mines. Only four states, Colorado, Indiana, Kentucky and Ohio failed to produce more oil than the federal estimate set as proper for these 10 months. Those recording excesses and the percentages above the estimate were: Arkansas, 2.36 percent; California, 7.72 percent; Illinois, 30.58 percent; Kansas, 4.38 percent; Louisiana, 2.36 percent; Michigan, 17.15 percent; Montana, 3.03 percent; New Mexico, 11.29 percent; New York, 3.8 percent; Oklahoma, 4.04 percent; Pennsylvania, .87 percent; Texas, 6.45 percent; West Virginia, 2.03 percent; Wyoming, 9.3 percent.

In November the nation as a whole had crude oil production 1.01 percent below the estimate of the Bureau of Mines.

When the genial E. O. Thompson presides as chairman of a compact meeting, all members, all observers from non-member states and all visitors of note are invited "let us know what is on your mind."

Hints at Federal Control

This request to Walter A. Jones of Pittsburgh, representative of Governor George Earle of Pennsylvania, a non-member state, brought the bomb shell of the Oklahoma City meeting, a letter from the Pennsylvania governor, addressed to the compact but evidently intended for the petroleum industry as well.

One paragraph read:

"If the states themselves do not maintain control over our natural resources to prevent waste, through compacts or other forms of conservation, the time will come when the federal government, for the protection of all the citizens, will be forced to step in and establish a strict licensing or regulatory system."

The letter went into the proceedings while many who heard it went off to express their opinions of a hint at federal control from the democratic governor of a recently republican state.

E. E. Blincoe, compact member and chairman of the Kansas Corporation Commission, outlined the Kansas problem as one of holding potential output of 2,000,000 barrels daily to less than 200,000 barrels daily.

Hiram M. Dow, compact member and Lieutenant Governor of New Mexico, said he anticipated no difficulty in administering conservation regulations in his state to the end that oil would be produced under conditions that assure conservation.

William Bell, Robinson, independent oil producer and Illinois compact member, had a chance to report production in his state on the upgrade with stored oil reduced.

The meeting was the first to have a technical touch. M. L. Haider, production engineer of The Carter Oil Company, Tulsa, gave a brief summary of the benefits of unit operation of the repressuring project of the South Burbank field, Osage County, Oklahoma.

V. E. Cottingham, engineer of the Texas Railroad Commission, explained several charts of Texas oil fields, which lined the walls of the meeting room. These revealed the effect of restricted output on bottom-hole pressure and other types of reservoir energy.

The compact accepted the invitation of the Kansas member and will hold its next quarterly meeting in Wichita.

I. P. A. A. resolution recommends restriction

Restriction of crude production and restriction of refinery runs were recommended to the industry by the executive committee of the Independent Petroleum Association of America, which met in Oklahoma City, January 18. The resolution, which follows, is similar to the recommendation made to the Interstate Oil Compact Commission the same day in Oklahoma City by Charles F. Roeser, association president:

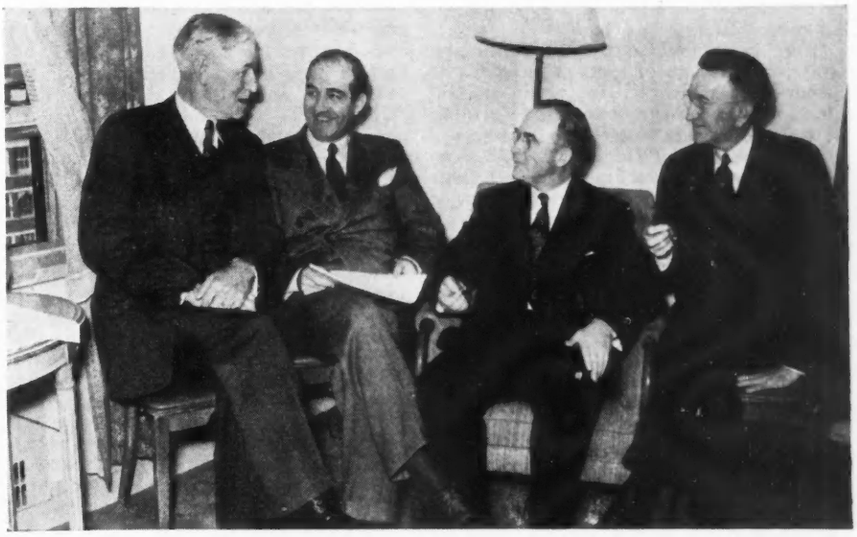
"The executive committee of the Independent Petroleum Association of America recognizing the very serious situation now existing in the petroleum industry is of the opinion that this condition will eventually result in destruction of companies now actively engaged in the refining division of the industry; that the loss of these companies might result seriously to the industrial welfare of the entire country.

"We believe the present situation results from at least two causes that are capable of being corrected by the industry itself; that the failure of the industry to recognize and correct these conditions may have serious consequences upon the future conduct of this industry.

"The two outstanding causes of the

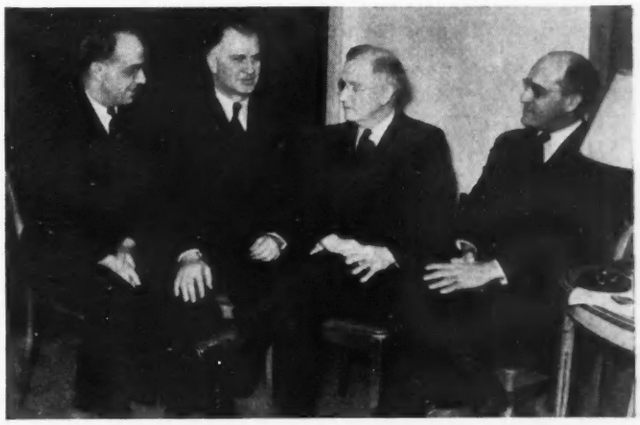
At the Interstate Compact Meeting

Illinois: William Bell, Robinson, below, who told the compact that a statute has been drawn to give Illinois a conservation law, and will be offered the legislature whenever there is need to restrict well output in his state.



Texas: W. R. McFadden, who, since establishing an office in Fort Worth, claims Texas, as well as Louisiana, Oklahoma and Colorado, as a place of residence; Jack Blalock, Houston attorney; Colonel E. O. Thompson, chairman of the Interstate Oil Compact Commission; and Elwood Fouts, Houston attorney, discussing matters.

Kansas: At the right are the men responsible for conservation in the state. E. G. Dahlgren, director of proration, Kansas Corporation Commission; E. E. Blincoe, chairman of the commission and Kansas representative on the Interstate Oil Compact Commission; E. R. Sloan, member of the Kansas Corporation Commission; and Marvin Lee, who has resigned, effective February 15, as technical advisor to the oil conservation division of the Kansas Corporation Commission.



Observers: C. V. Terrell, chairman of the Texas Railroad Commission, and W. R. Boyd, executive vice president of the American Petroleum Institute, shown below, may be discussing Texas farms rather than the oil business.

Producers: Among the many producers and royalty owners present were Sid Dellaplain, president; Fritz Auren, geologist, Southland Royalty Company; and D. R. Snow, vice president, Barnsdall Oil Company. They are shown above.

situation referred to are:

"First, excess production of crude petroleum, which eventually will result in serious waste of a valuable natural resource.

"Second, excess refinery runs of crude petroleum resulting in excess supply of of motor fuel.

"We commend to the oil producing states a program of restriction of crude production which will result in the reduction of the present above-ground storage of crude petroleum to the approximate level of January 1, 1937. Further we urge that refiners restrict their refinery runs so as to prevent further addition of motor fuel supplies to storage."

The committee voted to hold the next annual meeting of the association in Tulsa. Dates will be fixed for the latter half of October.

Arkansas increases Schuler allowable

Arkansas Board of Conservation in an allowable order for Schuler promulgated Friday doubled the allowable per well for February, raising the allowable for lower Marine (Jones sand) wells from 400 to 800 barrels daily on a 20-acre space unit. This gives 10 of the Jones sand wells 800 barrels daily, and one, which is on less than 20 acres, 660 barrels daily for next month. Travis Peak and Permian lime wells were not affected.

Under the per well schedule for the Miller County, Arkansas, part of Rodessa for February some individual wells will be given an increased allowable based on bottom-hole pressure, space and gas/oil ratios.

Michigan committee to study proposed shut-in

A 10-man committee was chosen by Michigan operators this week to study Michigan market and price conditions following proposals to shut in (producing wells) the Buckeye oil field of 340 producing wells. The meeting of operators followed the January 8 price cut of 15 cents per barrel.

Sunday shut down was urged at Texas hearing

Statewide Sunday shutdown for all Texas oil fields during February, which was promulgated into an official order late in the week, was recommended at the monthly hearing held earlier in the week before the Texas Railroad Commission. The plan was advanced as a means of bringing Texas production within consumer demand, and met with little opposition from operators who attended the hearing.

East Texas Pressure Drop

A large part of the discussion centered around conditions in the East Texas field where a decline of 11.22 pounds in the average bottom-hole pressure was reported by V. E. Cottingham, director of production for the commission. This resulted in an average pressure of 1,119.98 pounds per square inch as of January 8. During the preceding month the allowable averaged 475,015 barrels daily so that the pressure decline represented a drop of .762 pounds per million barrels of oil produced.

Cottingham pointed out, however, that during the Sunday-shutdown period, which represented a cut of some 60,000 barrels in the East Texas daily allowable, pressures had risen about a pound, and on the basis of this result he recommended that further shutdowns be ordered.

He said that during the past year crude storage had materially increased and gasoline storage had risen enormously and was now about 9,000,000 barrels in excess of normal needs for the season. He expressed the opinion that this condition could be corrected only through a material curtailment of the allowable and for this reason he recommended a statewide shut-down.

Tyler Recommends Less Drilling

The oil committee of the Tyler Chamber of Commerce wired the commission suggesting a statewide shutdown and urged that the commission take steps to prevent unnecessary drilling in the East Texas field. This was the same committee which came to Austin only a month or two ago to protest against the shut-down then in effect in East Texas.

Commissioner Thompson pointed out that the operation of gasoline plants has materially increased production in Texas if the figures he reported are converted into crude. Only 3000 wells in East Texas are not now connected to gasoline plants and a few fields in the Gulf Coast produce large quantities of gasoline through stripping plants, and the program is being extended to all other sections of the state rapidly.

Thompson said that current gasoline production of this type is 2,104,914 gallons daily, which is equivalent to 119,154 barrels of crude oil.

The significance of these figures lies in the fact that this gasoline is now supplanting that which was formerly supplied exclusively from crude oil. While the plan is of material value from the standpoint of conservation, it has an adverse effect on the consumer demand for crude oil.

Minor increases were asked for some fields, but most operators contented themselves with a request that their allowables remain unchanged during the month of February.

Nominations Increased

Nominations filed by purchasers of Texas crude indicated a February demand of 1,578,373 barrels daily, a decreased of 18,921 barrels in the nominations filed for January.

For the first time, Humble Oil & Refining Company filed a request for an allowable increase based on sale to foreign markets. This was contained in the request to the commission that the 1700-barrel increase in the Sugarland allowable, which was granted recently, be continued through February. The company submitted detailed figures showing the distribution of crude oil production by states which showed that the percentage of oil produced in Texas was declining while that for some of the other states was on the increase, as indicated by an appended table.

Percentage Distribution of U. S. Crude Oil Production by States, 1927-1937, Inclusive.

Based on Bureau of Mines Figures for Production

YEARS	Texas	Oklahoma	Kansas	Louisiana	Arkansas	Eastern States	New Mexico	Balance Rocky Mountain	California	Total United States
1927	24.12	30.82	4.56	2.53	4.44	4.49	.14	3.24	25.66	100.00
1928	28.54	27.73	4.28	2.42	3.56	4.52	.11	3.13	25.71	100.00
1929	29.47	25.32	4.25	2.04	2.47	4.68	.18	2.55	29.04	100.00
1930	32.34	24.12	4.64	2.59	2.19	5.13	1.13	2.55	25.31	100.00
1931	39.05	21.22	4.35	2.56	1.74	4.84	1.79	2.26	22.19	100.00
1932	39.80	19.52	4.44	2.78	1.53	5.49	1.59	2.17	22.68	100.00
1933	44.45	20.14	4.63	2.78	1.29	4.57	1.56	1.59	18.99	100.00
1934	42.01	19.83	5.12	3.62	1.23	5.22	1.86	1.90	19.21	100.00
1935	39.42	18.59	5.50	5.05	1.10	5.43	2.06	2.00	20.85	100.00
1936	38.88	18.78	5.30	7.32	.95	4.75	2.48	2.01	19.53	100.00
1937	40.13	17.57	5.37	7.19	.97	4.81	3.14	2.12	18.70	100.00
MONTHS, 1937										
January	39.87	19.03	5.38	7.55	.79	4.21	2.83	2.04	18.30	100.00
February	40.53	18.69	5.68	7.15	.81	4.33	2.97	2.10	17.74	100.00
March	40.81	18.91	5.66	7.03	.76	4.50	2.96	2.12	17.25	100.00
April	39.50	19.46	5.74	6.86	.77	4.66	3.00	2.09	17.92	100.00
May	40.00	18.59	5.76	6.88	.75	4.47	3.13	2.04	18.38	100.00
June	39.44	18.12	5.70	7.29	.79	4.73	3.15	1.96	18.82	100.00
July	39.64	18.14	5.80	7.22	.78	4.70	3.11	2.02	18.59	100.00
August	41.07	17.53	5.41	7.11	.92	4.79	2.99	2.05	18.13	100.00
September	40.45	16.86	5.37	7.20	1.01	5.21	3.11	2.10	18.69	100.00
October	40.41	16.71	5.42	6.85	1.15	5.20	2.96	1.90	19.40	100.00
November	39.48	16.78	5.12	6.84	1.29	5.39	2.97	2.13	20.00	100.00
December	39.22	16.13	5.12	7.16	1.33	5.36	3.12	2.00	20.56	100.00

Oil in the Courts

With detail instructions as to what it is to consider in its deliberations, oil price conspiracy suit is given to jury . . . Six more defendants released.

FEDERAL Judge Patrick T. Stone Friday afternoon gave the government's "oil conspiracy case" to a jury of 12 small-town businessmen and retired farmers with instructions to disregard testimony that the 16 major companies and 30 individuals whose guilt or innocence they must decide, acted in a "reasonable" manner to gain an objective sought by the government under the NRA code for the petroleum industry.

Judge Instructs Jury

The court's instructions, which consumed almost two hours and extended Friday's session well into the afternoon without a noon recess, treated in detail various lines of testimony introduced by both the prosecution and defense. In some instances, the jury was told what weight it could give evidence, and in other instances was told to disregard entirely testimony presented since the trial opened over 15 weeks ago. That certain defendants were dismissed since the trial opened is to be disregarded in the jury's deliberations, and each of the remaining defendants is to be given individual consideration.

The court particularly stressed the value of circumstantial evidence, telling the jurors that such evidence must be consistent and be so definite as to be definable only "one way," and its value or interpretation must not be left to "conjecture or suspicion." Judge Stone said that the jurors must be satisfied "without a reasonable doubt" that there was an agreement among the defendants to act together for an "unlawful purpose," namely increasing prices on East Texas and Mid-Continent spot markets. One action by any one of the parties to the conspiracy, whether done with or without the knowledge of others would be sufficient to sustain a conviction as to all members of the conspiracy, the jury was told. A mere rise in the level of tank car prices on the spot market is not in itself proof that major company purchases made in concert were responsible, the court said. Defense testimony that the tank car market was affected by the Connally Act and the Tender Board's curtailment of production under the code, increased consumption accompanying improved business conditions, as well as major company buying which the defense maintains was not done as a part of a program of obligated purchases was called to the attention of the jury, and the court stressed again that jurors must first be convinced that defendant companies had the power to bring about the price increase.

In his closing instructions, Judge Stone told the jury to disregard all statements made by the prosecution concerning the size and importance of the companies on trial or the wealth of individual defendants.

Before giving the case to the jury, Judge Stone granted directed verdict motions on behalf of six more individual defendants, bringing to 30 the number of individuals whose case will be decided by the jury. Those acquitted last week were: Fred L. Koopman, Bartlesville, vice president in charge of purchases for Phillips Petroleum Company; L. T. Cramer, Ponca City, tank car buyer for Continental Oil Company; Thomas Fitzgerald, Tulsa, assistant to the vice president in charge of sales for Mid-Continent Petroleum Corporation; Dewey K. Chamberlain, manager of the Tulsa division for Pure Oil Company; H. A. Gardner, Bartlesville, tank car sales manager for Phillips Petroleum Company; and Clyde M. Boggs, Arkansas City, Kansas, president of the Western Petroleum Refiners Association.

Defense Summary

William J. Donovan, a former assistant United States attorney general and chief of defense counsel, summarized the defense argument, declaring the action of defendant companies was a "sensible" as well as "right, proper, decent and lawful" attempt to correct a deplorable situation prevailing in the industry. He pointed out that major company purchases were not made above the quoted market, and transactions that merely influence the market do not constitute price fixing. To support a price fixing charge under the Sherman act, "there must be an agreement on a specific price, and an agreement to stick to that price," he declared. He ridiculed a prosecution claim that if defendant company purchases affected the tank car prices "one iota," they constituted a violation, adding, "if that were true, you and I would be guilty every day in everything we buy, because every transaction, every sale, has an effect upon price."

The defense counsel told the jury that not only has the prosecution failed to prove violation of the anti-trust act, but that the defense has proven that the spot market was a free and open market and that major company purchases did not interfere with sales of independent refiners to other customers.

Instead of effecting a monopoly, major company purchases had the effect of keeping trade open, Donovan maintained. "If the major companies had been content to let the price go down, then it could very well have been that many more of these independent refineries would have died," he said.

Calling attention to present conferences of the President with national business leaders, Donovan dramatically closed his argument by declaring that roll was called four years ago of the men now on trial so that help could be given a depressed industry.

Hammond E. Chaffetz, opening the prosecution's rebuttal argument, maintained that the government showed "beyond a shadow of doubt" that the defendants agreed among themselves to cooperate in a buying program for the purpose of raising the tank car market for their own enrichment, and that this in itself constituted a violation of the Sherman act. He declared that it was not necessary for the majors to make purchases above the market, but merely their activity was sufficient to strengthen the market and raise the price.

Theodore Brazeau opened the defense rebuttal. In discussing the East Texas situation he pointed out that of the ten companies originally charged with participating in buying activities in that area, only four remain in the case. Discussing them individually, he declared the Cities Service Company was an overall company and never bought a gallon of gasoline in East Texas and its subsidiary, Cities Service Export Oil Company, against which charges have been dismissed, bought only for shipment to the seaboard and foreign countries and didn't have an interest in Mid-West tank car or jobber prices. Continental Oil Company bought only 50 cars in the 14-month period. Testimony which was not challenged showed that the remaining two companies, Pure Oil Company and Sinclair Refining Company, bought huge quantities because they needed it and none of their purchases were made above the quoted market.

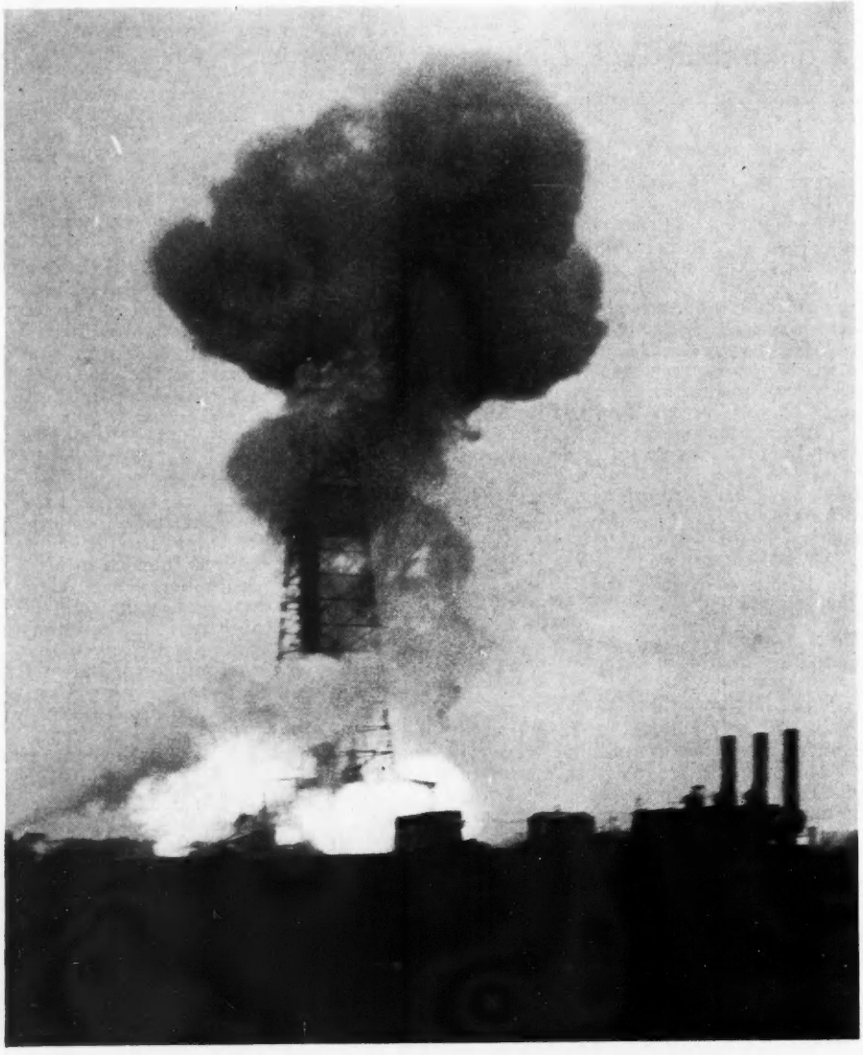
H. H. Thomas, Madison, continued the defense argument and told the jury that there was no "monopolistic menace" in major company buying activities. He declared that the one dollar a barrel pegged price for crude during the code period was set by the government and it was the industry's "moral obligation" to comply with the requirements of the government in that connection. The same code, he pointed out, established a "parity price" for gasoline with one dollar crude at five point four cents a gallon, the price the major companies are charged with having brought about. "We say that what we did was lawful, that it was not contrary to the Sherman law either in 1935 or 1936, and that the government of the United States, through the secretary of the interior, viewed what we did as lawful," Thomas declared.

More East Texas oil to get legal blessing

Release of 439,112 barrels of confiscated crude and refined products stored in the East Texas field is scheduled to follow public auctions to be held at Henderson January 31 and at Longview February 1, according to Tom D. Rowell, assistant attorney general. This oil was confiscated by the state last year through 7 suits filed against East Texas refining interests for alleged violation of proration rules, and the

[*Continued on page 66*]

Scenes at Recent Spectacular



UNUSUAL PICTURES OF PALACIOS FIRE

Two remarkable photos of Sun Oil Company's burning well at Palacios, Texas, appear on this page. At the top is shown the well at the very instant it caught fire. Note that the first puff of oil has just reached the top of the derrick, but is not yet burning, while the flames have just burst forth around the base of the rig. The lower picture was taken but a few seconds later, and shows how quickly a fine rig can become a mass of wreckage under terrific heat.

Connections brought in the cellar of the rig in such a fashion as to keep most of the flames confined to that spot, making it difficult for the firefighters to extract a large quantity of drill pipe and other equipment. However, M. M. Kinley of Houston was successful in performing this work and also in capping the well. After removing most of the equipment under such conditions, nature assisted when a small shale bridge momentarily shut off the blow. This permitted the fuel in the air to burn out. Thereafter it was necessary to only cap the wild but not blazing flow.

The photographs are the combination of fortune and skill on the part of Jack Keeland, one of the drillers.

Fires

KILGORE BUSINESS DISTRICT THREATENED

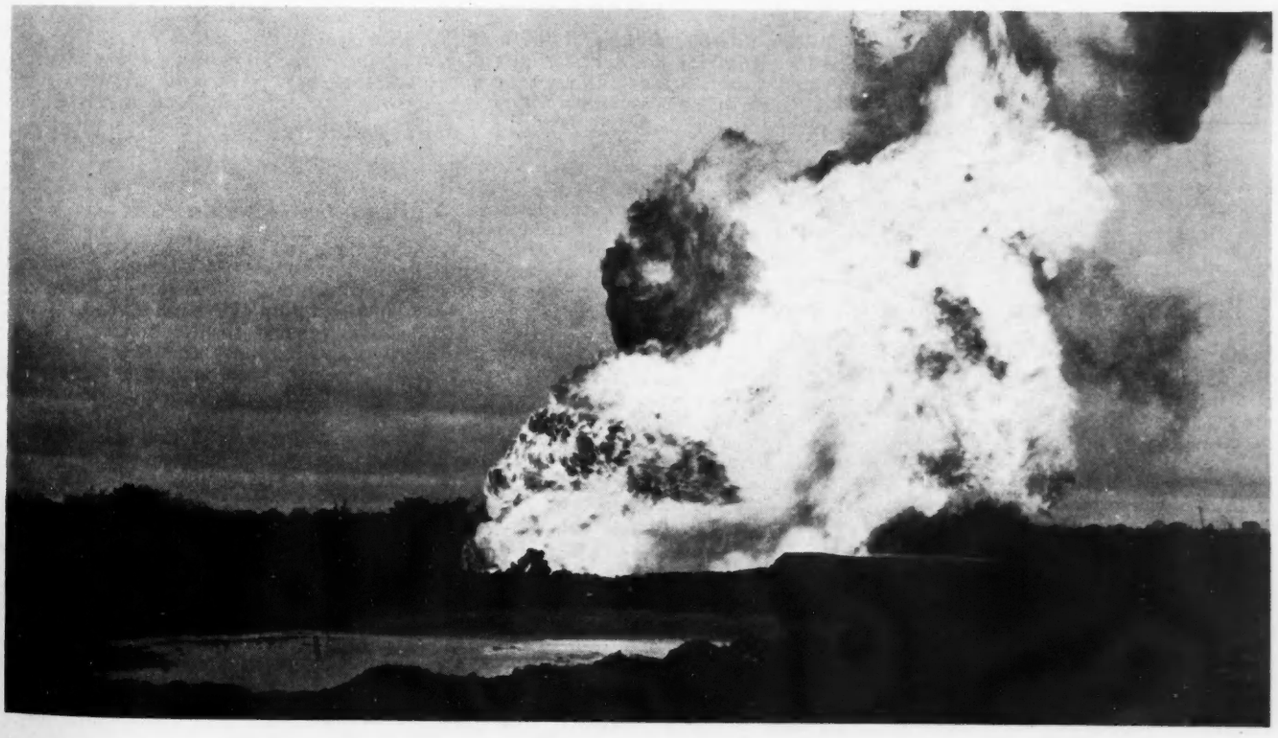
A blazing well in the heart of the business district at Kilgore, Texas, did an estimated damage of $125,000 last week, part of which is shown in the photograph to the right. Firemen of eight East Texas cities stifled the blaze with chemicals, while others crawled through a tunnel to close a valve. The well, and two adjoining ones that were damaged when water was pumped in to kill the gas pressure, are expected to produce again when cleaned out and swabbed.

—Knights Studio.

BLAZING TWIN GAS WELLS CRATER

An unusual instance of twin blazing gas wells cratering occurred last week in the La Blanco field, Hidalgo County, South Texas. Within a few hours after a blowout appeared on top of the ground near an old hole that had been abandoned, a drilling test located 50 feet away was swallowed in the crater. Heat from the blazing oil hole and gas from it blew supporting dirt from around the surface casing in the offset, causing the casing to collapse.

—Brad H. Smith.



Labor Situation

Mexican labor board orders higher wages . . . Pine appeals suit . . . Standard Indiana charged before labor board . . . Louisville firm ignores decision.

DEVELOPMENTS in the labor situation last week consisted of the following: notification that companies operating in Mexico must install immediately the wage increases granted by the government's Board of Conciliation and Arbitration last December; announcement of an appeal by W. B. Pine in his suit to oust striking workers from leases in Seminole County, Oklahoma; filing of charges against Standard Oil Company (Indiana) by the C.I.O.; and refusal of Louisville Refining Company to conform to a decision of the National Labor Relations Board.

Mexican Situation

The Mexican government's board decision, which granted higher wages and other benefits to oil workers, was suspended by the federal labor board shortly after it was issued. Meanwhile, a fight over its merits waged hot. The suspension was revoked January 19 by Chairman Gustavo Corona of the federal labor board, because the 16 affected companies failed to post 'unlimited bonds." The companies are said to also have refused to pay $360,000, as ordered by the federal labor board for the 12 days of last spring's strike.

It has been estimated by the oil concerns that the wage increases will boost operating costs $11,400,000 annually.

There is a possibility that the companies involved may reach an agreement on the bond to be posted and back wages to be paid, in which case the suspension of the labor board's wage increase demand could be revived. This would give time for a hearing of the labor controversy before the Supreme Court, to which the oil companies have appealed.

Indiana Company Charged

Charges filed against the Standard Oil Company (Indiana) and Stanolind Oil & Gas Company by the Casper, Wyoming, local of the Oil Workers International Union, a C.I.O. affiliate, will be heard by an examiner of the National Labor Relations Board at Casper January 24.

Standard Oil Company (Indiana) is charged with "dominating and furthering" a labor organization, the Standard Employes' Collective Bargaining Association, which the union maintains is a "company union" having no legal status under the Wagner labor act. The C.I.O. union has refused to enter into an election with the association to determine which organization should represent workers in collective bargaining.

The C.I.O. group charges Stanolind Oil & Gas Company intimidated and coerced its employes in preventing their affiliation with any labor group and with discharging workers for union activity.

Will Not Comply

The Louisville Refining Company, Louisville, Kentucky, will refuse to conform to what was described as one of the most sweeping decisions ever made by the National Labor Relations Board, Ernest Woodward, counsel for the company, said last week. The decision was announced January 14 and was based on hearings conducted in Louisville from April 1 to 8, 1937, by Trial Examiner Emmett P. Delaney.

The NLRB ordered the company to cease and desist interfering with, restraining or coercing employes in their right to organize, from refusing to bargain collectively with the International Association of Oil Field, Gas Well and Refinery Workers of America and from discouraging membership in the union by discharging employes or refusing reinstatement.

The board further ordered the company to offer to reinstate 19 of 23 men listed in the union's complaint and make whole any loss of pay suffered during their idleness, and to make similar offers to employees who went on strike March 1, 1937, as a result of the dispute.

The company denied that it had engaged in unfair labor practices and had asked dismissal of the complaint on the ground that the NLRB had no jurisdiction as the company was not engaged in interstate commerce.

"We never had any hope of the board's deciding the case in our favor, so we are not going to do anything about it whatever," said Woodward. "We think the decision is unjustifiable. If they wish to continue the action, they must make the next move in the courts."

Legislative Trends

Higher depletion allowance sought . . . Curtailment of exports suggested . . . Naval crude reserve fund slashed . . . Anticipated production sales not taxed.

California would raise depletion allowance

With a $200,000,000 annual "Oil crop," California is highly interested in treasury recommendations for reduction or elimination of the depletion allowance, Representative Alfred J. Elliott told the House January 20.

Instead of considering a reduction in the allowance, he declared, Congress should give thought to an increase in cases where the present rate does not insure a return of capital.

The dry-hole problem is an important one to California producers, Elliott said, because of the depth to which drilling is carried and the high cost of drilling in the state. Few wells in California are now being drilled to less than 7000 feet, he explained, the average cost being above $200,000.

Any reduction in the present rate for depletion would work a hardship upon the operators, most of whom have adjusted their programs on the expectancy that the present rate would be continued, he told the House.

"The depletion allowance, by setting up a fixed ratio upon which the operator may count as a means of recovering at least a part of the investment he has been compelled to make through drilling dry holes in his search for a producing well, has altered very largely wildcat operations from gambling risks to business hazards," he said. "Without it I am positive that very many who are ready now to venture their money in wildcat operations with the assurance that if they ever strike a producing well in the course of these operations they may through this depletion deduction obtain at least a portion of this capital back, would not do so."

Propose licensing oil exports as defense move

Licensing of oil exports as a means of safeguarding our national resources was suggested to the Senate Military Affairs Committee this week by Paul E. Hadlick, secretary of the National Oil Marketers Association, for consideration in connection with the committee's investigation of domestic supplies of strategic materials essential to the national defense.

In a letter to Senator Elbert D. Thomas, of Utah, chairman of the subcommittee which will conduct the inquiry, Hadlick pointed out that present exports of petroleum products are "tremendous" and called attention to the fact that petroleum is a commodity of major importance to the country in the event of war.

The association, he explained, has

[*Continued on page 55*]

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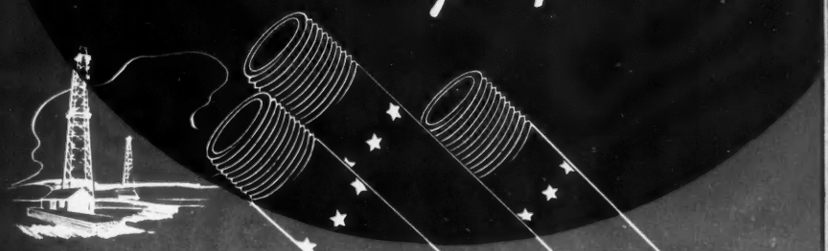
INTERNAL FLUSH DRILL PIPE

available in both regular A.P.I. and Pittsburgh Special



Adoption of internal flush drill pipe by the A. P. I., recently, again emphasizes the advantages of this type of drill pipe: the descending mud flowing through the unobstructed passageway flushes the bit with greater force, prevents cuttings from accumulating around the bit and drill stem and results in faster drilling with less wear on bits; also the decreased pump pressures add economies, larger core barrels may be used, and coring is easier. A number of strings of PITTSBURGH SEAMLESS Internal Flush Drill Pipe have been in service for some time. Most of these have been of the PITTSBURGH SPECIAL Double Grip design. Internal Flush Drill Pipe is now offered in Regular A. P. I., and PITTSBURGH SPECIAL. Pittsburgh Special Double Grip Drill Pipe has—

Regular A. P. I. thread length
PLUS a machined, tapered "land" for patented shoulder seal.

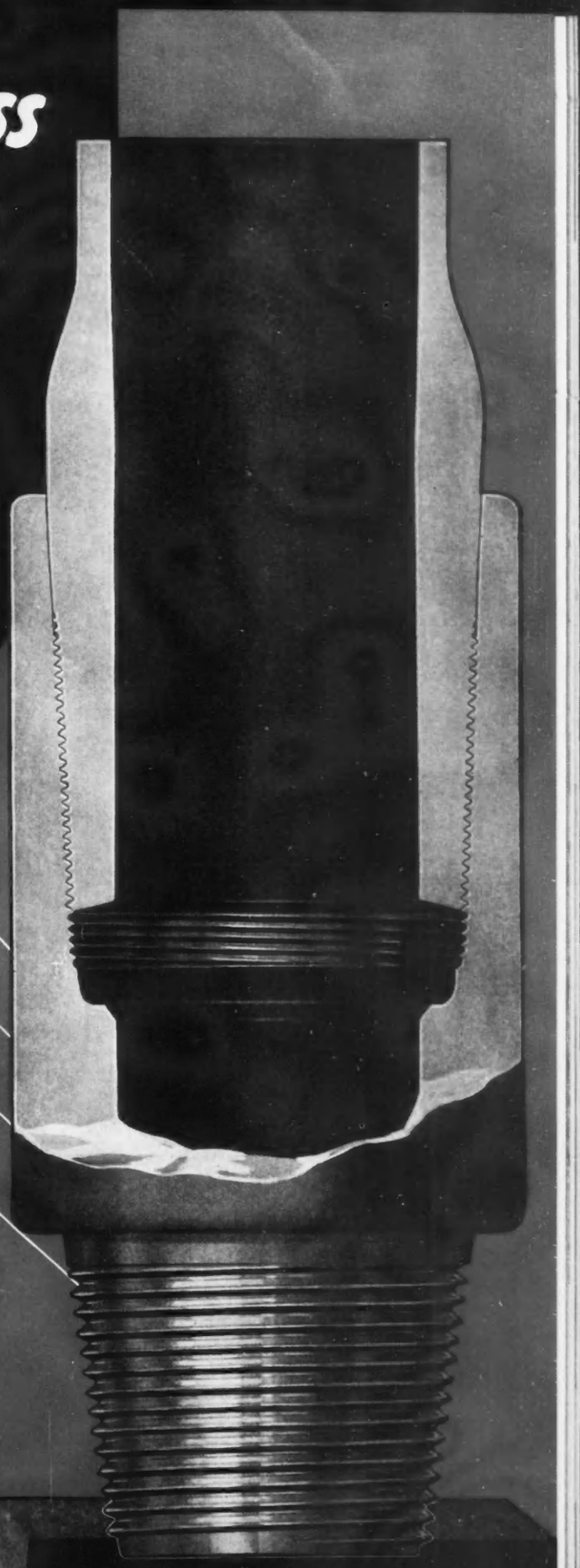
★ ★ ★

Regular A. P. I. threading
PLUS at least 35% greater contact surface for greater strength.

★ ★ ★

Regular A. P. I. grades and sizes
PLUS shoulder seal, added strength and thread accuracy.

★ ★ ★



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NEW YORK PHILADELPHIA CLEVELAND DETROIT CHICAGO
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THERE IS NOTHING SUPERIOR TO SEAMLESS

OBTAINING MAXIMUM PRODUCTION THROUGH

Efficient Operation of Sub-surface Pumping Equipment

PART III
Valves and Seats

By DON E. SCHNOBRICH

IN two previous installments the author has discussed corrosion of underground equipment and destructive effects of bad adjustment of equipment.

In the present text is discussed possibilities of increasing efficiency of pumps and consequently lifting more fluid at less cost by minor adjustments of equipment or changes in manner of handling equipment.

REALIZING that substantial increases in production from any particular well or lease often hinges upon some slight change in equipment or methods of handling, operators are usually on the alert for new practices which have been reported to show good results and frequently conduct considerable experimentation on their own.

Oversize Standing Valves

What might be offered as a typical example of research and development by the field man is in the recent perfection of an oversize standing valve which offers to the tubing-type working barrel a bottom fluid passage of dimensions heretofore believed unobtainable. Increases in production through the use of the new valve have been reported to range from 10 to 30 percent — depending upon the amount of fluid actually available and the working efficiency of the accompanying equipment.

Situated in a particularly strategic position—between the fluid in the hole and the working barrel proper—the fluid passage opening at this point has long been realized to be of vital importance. It has been believed, however, that in order to maintain a satisfactorily balanced sub-surface pumping unit, it was necessary to confine the dimensions of the standing valve to be in direct proportion to the accompanying working barrel. Of late, however, in repeated trials and tests conducted in widely-separated areas, the use of the oversize valve was found to have little or no effect on the remaining equipment and, contrarily enough, besides increasing production, apparently assisted in a more efficient operation of the related valves and fluid checks.

Figures 7 and 8 typically illustrate the three types of oversize valves now in general use in the Mid-Continent area and although all more or less follow similar working principles, the mechanical construction varies in each. Both valves shown in Figure 7 are now standard equipment, and are available from any major pumping equipment supplier. Certain modifications, in some types, are necessary in making this adaptation but in most instances no changes are necessary in equipment with the exception of the valve proper.

Figure 8, however, shows a more radical departure from the conventional type of oversize valve inasmuch as all parts are incorporated into one unit. Although the diagram shows the valve equipped with the disc-type drop and seat, they are also constructed for use with the ordinary ball and seat, and all sizes are so threaded as to afford nipple and gas anchor connections without the use of collars.

Fundamentally, the principle underlying the use of the new valves is in supplying the largest possible fluid passage opening to any given size of working barrel. Due to this larger size and capacity, however,

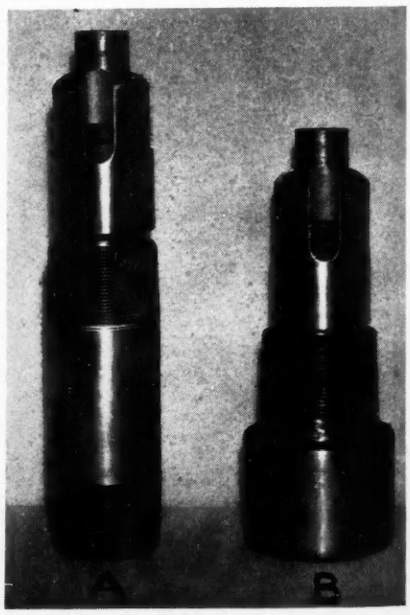
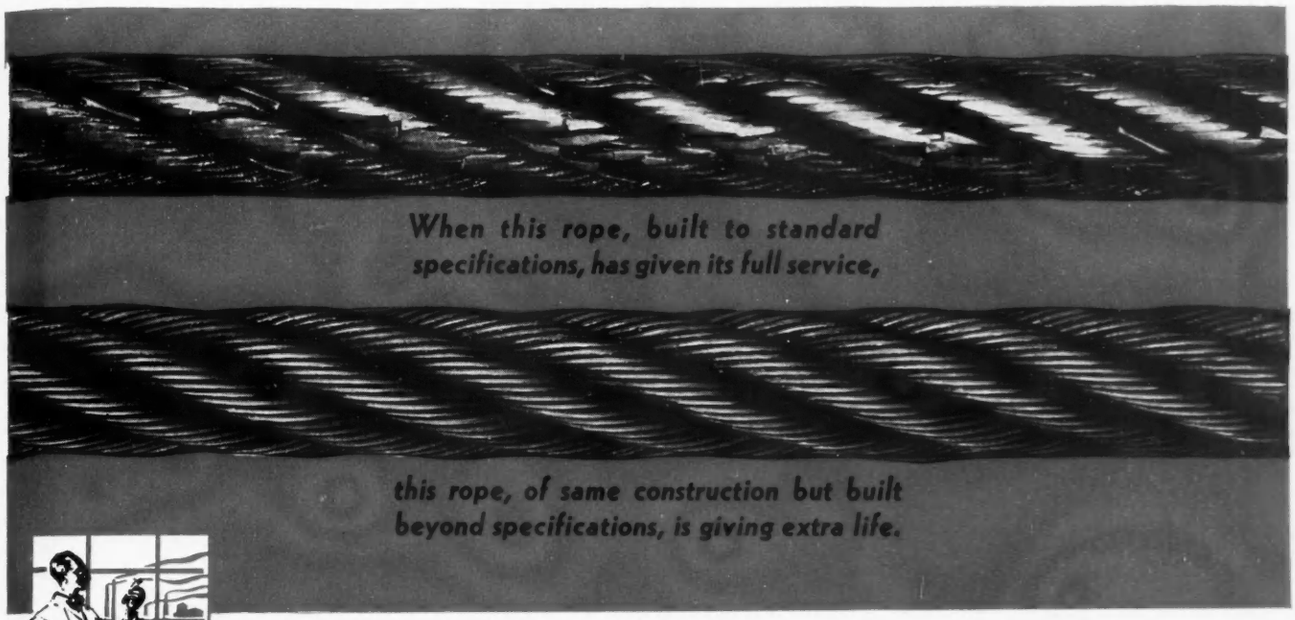


FIGURE 7
Oversize Standing Valves

Quality BEYOND *Specifications gives* EXTRA ROPE LIFE


When this rope, built to standard specifications, has given its full service,
this rope, of same construction but built beyond specifications, is giving extra life.

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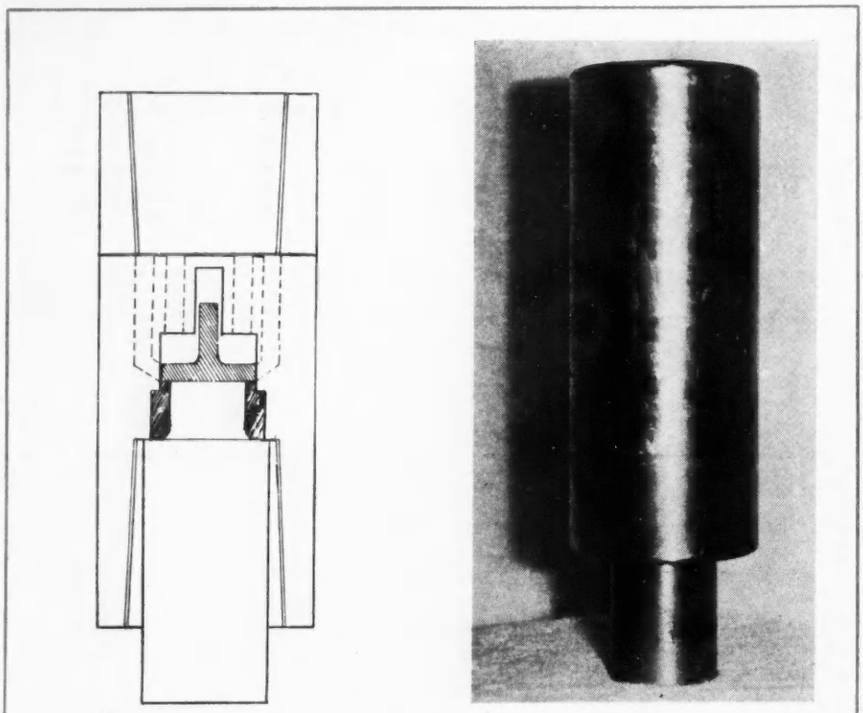


FIGURE 8

all oversize valves, regardless of make or manufacture, are necessarily confined to a stationary anchorage to the tubing string and cannot be pulled for inspection or replacement without a complete removal of the latter.

Valve B of Figure 7 shows the less commonly used Barbour oversize standing valve and here it will be noted that the threads are both female and male types for connection to extension nipple, mud anchor, and mosquito bill. Valve A is the more commonplace standard oversize valve and requires the use of collars for both nipples and anchor connections.

With some exceptions, all types of oversize valves use the recently adopted drop and seat or disc-type drop (Figure 12). The reason for this is explained by the fact that inasmuch as all oversize valves depand upon a stationary anchorage to the tubing, it is considered essential that the working valve be as near foolproof and infallible as possible. Valvular failures meant, in most cases, a complete round trip of tubing—usually wet. The drop-type working valve was considered as the most adaptable and durable for this situation and its use is found in the majority of instances where the oversize valve is employed. (A discussion of the drop-type working valve will be found in another part of this article.)

Cupped and Mechanical Hold-Downs

Illustrated in Figure 9, are the two types of hold-downs now commonly used in anchoring insert- and rod-type working barrels and which are definitely termed as "mechanical" (A) and "cupped" (B). In use with the cupped type is the sealing tube (also shown) which is coupled to the tubing and is so constructed as to offer smoothly machined internal surfaces for properly seating the composition cups. These tubes are usually from 18 to 24 inches long and are provided with removable collars.

In place of the sealing tube, a common-barrel is often used or the regular Parker-type working barrel. Usually, when a change is made from the tubing-type working barrel to a smaller barrel or stripper pump, the old barrel, instead of being removed and thrown away, is allowed to remain in the hole to act as a sealing tube for the cups of the new pump's hold-down.

The mechanical hold-down finds its main use in the deep well insert pumps and is constructed around the principle that the lock mandrel is securely trapped in the accompanying lock barrel by the use of expanding prongs. At the time that the prongs are properly trapped into place in the barrel, a corresponding metal-to-metal seal takes place between the sleeve on the mandrel and the seat in the barrel. (Shown by arrows.)

The main disadvantages of the cupped hold-down are undoubtedly in the restricted fluid passage openings and the impracticability of cups in deep production. For example, in

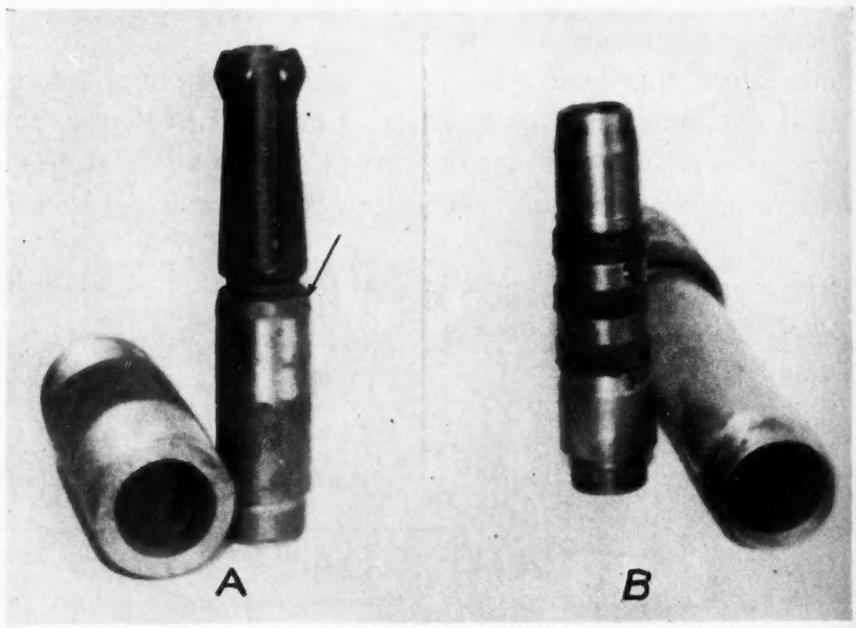
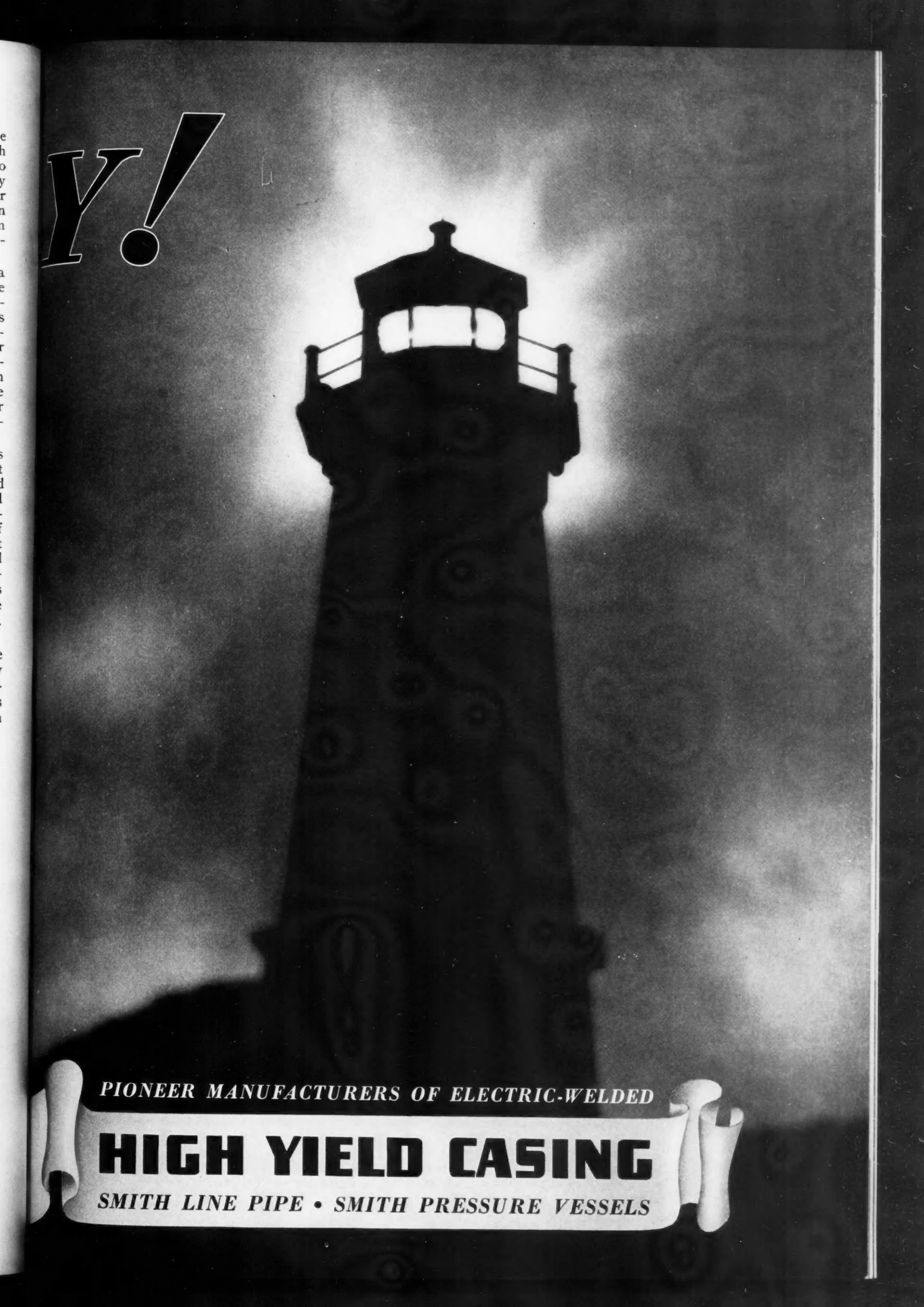


FIGURE 9

Mechanical hold-down with lock barrel (left) and cupped hold-down with sealing tube (right). Metal-to-metal seal is obtained between sleeve and seat as shown by arrows.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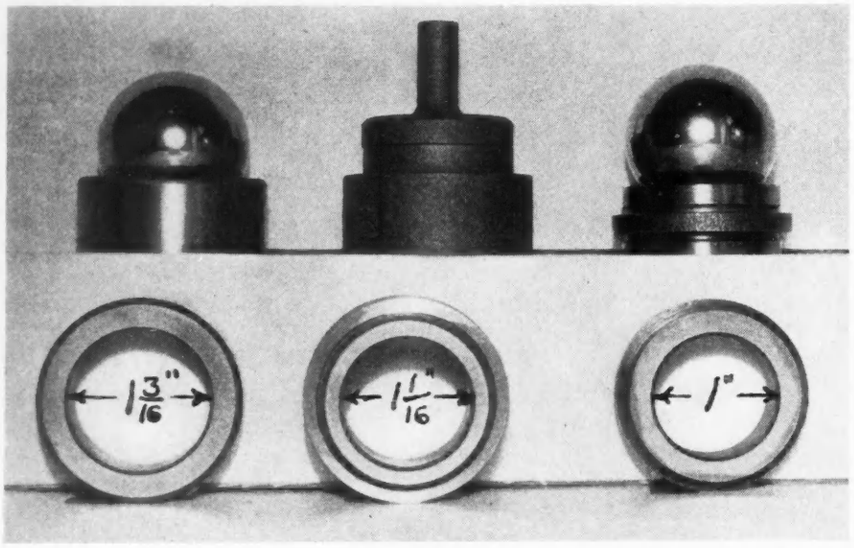

FIGURE 10

Showing flat, ring and disc-type valves with a comparison of their fluid passage openings.

the 2-inch sizes shown, the fluid passage clearance in the cupped hold-down is 7/8-inch in comparison to the mechanical which offers 1-1/16-inch. Although at first thought this difference may appear to be slight, when it is remembered that the hold-down is situated between the fluid in the hole and the standing valve, it will be realized that opening dimensions at this point are important.

A favorable feature of the cupped hold-down is, however, in the less possibility for sanding-up in comparison to the mechanical. Whereas the simplified construction of the cupped usually renders it easily removable under most sand conditions, the mechanical may become so sanded as to necessitate a stripping job in removal.

Considering the dangers of sanding-up in the mechanical hold-down, however, many operators are of the opinion that this handicap is generously outweighed by the superior working features of the mechanical and in its efficient metal-to-metal seal between lock mandrel and lock barrel. Once the expanding mandrel is securely locked into place, it is rarely that a loss of fluid or leakage at this point is encountered.

In stripper areas, or in conditions in which the quantity of fluid is such that the fluid passage openings may be safely ignored, the cupped hold-down is in more prevalent use. In deep areas, however, or in wells of a high potential production, clearance and fluid passage openings are realized to be of vital importance and every effort is extended to obtain the most efficient for the situation.

Fluid Valves

Generally speaking, all present types of fluid valves might be listed into three major classes: the flat-type seat and ball (a), the drop and seat (b), and the ring-type seat and ball (c). In Figure 10 these three types are shown and are for use in either traveling or standing valves.

Here, again, among other features, the question of fluid passage opening is an influencing factor in determining a choice. It will be noted in Figure 10 that considerable difference in this respect is found in the differ-

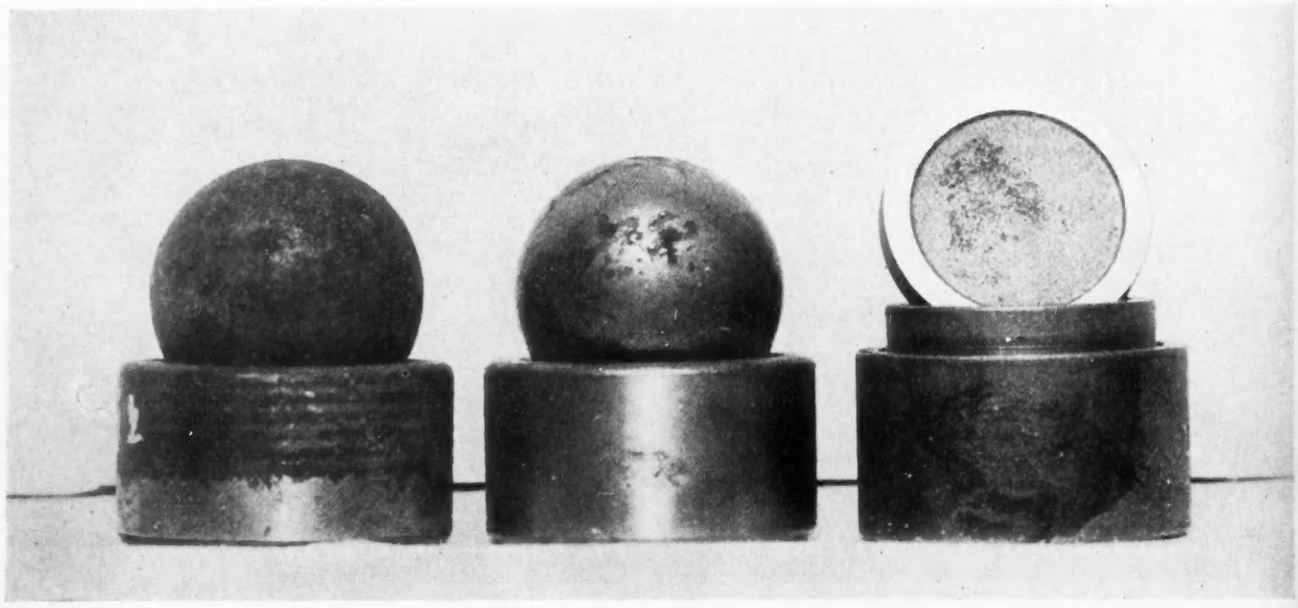

FIGURE 11

Disc-type valve, quality ball and seat and a cheaper grade of ball and seat run in the same well at the same time. Note difference in resistance to corrosion.

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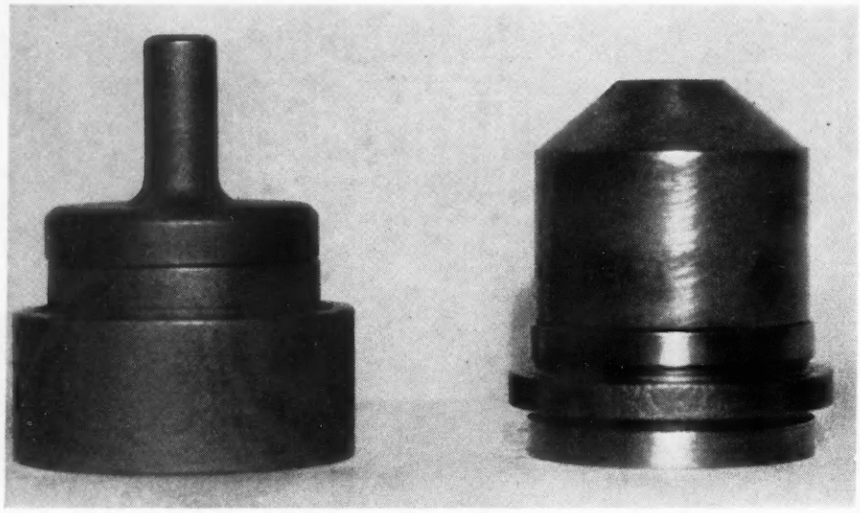

FIGURE 12

Showing the heavy and light types of drop and seat now being used successfully in traveling and standing valves.

ent types. The flat-type, it is seen, offers a passage of 1-3/16, the drop-type a passage of 1-1/16, and the ring-type 1-inch even.

From an operator's viewpoint, however, several other factors besides passage restriction are necessarily considered in making a selection of valves. Mechanical and metallurgical construction, acid- and corrosion-resisting features, ease of replacement and inspection, durability and longevity under normal conditions, and general sealing efficiencies, all enter into the matter of making a proper selection.

In the ring-type seat and ball, for example, a number of advantages and disadvantages are necessarily taken into consideration when making a choice for a certain production condition. Primarily, it is agreed, the main objection to the ring-type seat lies in its restricted fluid passage openings in comparison to the flat or drop types. A difference of 3/16-inch is of vital importance in many cases, as when large volumes of fluid are handled, and fluid passage restriction at any point are carefully avoided.

Rating next to the restricted fluid opening in the ring-type's objectional features is in its awkward and aggravating removal from cake or bushing when inspection or replacement is necessary. Requiring a friction fit in a recessed groove, it is sometimes a near impossibility to remove the ringed type without damaging the seat on the reverse side or so badly warping the body as to prevent its further use. A specially constructed valve puller aids in this work and is often found in the field equipment of many companies using this type valve. It has been found also that when the groove is worn, corroded, or lopsided that the seat is anchored off center or at an angle. When this occurs, the valve so far as operation is concerned, is worse than useless.

Although considerably improved upon with modern methods, the process of uniformly heat treating the different metals of a ring-type seat is still considered a difficult problem by many manufacturers. Where, in quality products, the present day processes are successful enough to prepare the seat for the majority of conditions—the inferior seat will frequently warp and cut-out under stress.

The main advantage of the ring-type seat undoubtedly centers about its double seat-locking facilities. The dual anchorage is obtained through the ring proper in the groove and the top surfaces of the seat when made up tightly in the cage. It is true, however, that several types of cages allow only one seat-lock—that of the ring in its groove.

Considered by many operators as the most practical seat for the majority of conditions, the flat-type has recently been seeing a wide-spread and rapid adoption for all purposes. Offering the largest fluid opening, composed of but one metal for easier heat treating, and handily removed or inserted in the cage—the flat-type offers a number of advantages. It is to be remembered, however, that only one anchorage is allowed and that of a seat lock nut made up flush to hold the seat in place. Properly made up and secured, however, little trouble is experienced in this respect.

The use of the drop and seat in various fields today is commanding serious consideration and attention. Of comparatively recent wide-spread use, the drop and seat has proved in many instances as far superior to any type of ball and seat. Although this fact cannot be said to hold true in all instances, the fact nevertheless remains that for fool-proof operation, durability, acid- and corrosion-resisting properties, and reliability—the drop and seat has withstood remarkably well the various tests applied.

Figure 11 shows the results of one operator's experiments in the use of a quality ball and seat, a cheaper ball and seat, and the disc-type drop and seat in the same well at the same time. This well, incidentally, was chosen for its peculiar corroding condition. It will be noted that whereas the cheaper ball and seat is badly incrusted with corrosion, utterly destroying its sealing properties, and the quality ball and seat shows some signs of deterioration—the drop and seat is little affected and, upon testing, its sealing qualities were found unimpaired.

Many varied makes and manufactures of the drop and seat are now offered to the operator and little difference is noted in types except in weight and size. Some types follow the pin guide principle (known as the disc type) while others tend towards the heavier streamlined drop. (Figure 12.)

The introduction of the oversize standing valve afforded an excellent opportunity for the drop and seat to prove its boasted durability and ruggedness under diversified conditions. The need for a reliable fluid-check mechanism in the new type oversize valve is important inasmuch as all oversize valves were of the unpullable type and, in event of valvular failures, always required a tubing round trip for replacement. Considering the expenditures involved in such an emergency, together with the loss of time and production, the choice of a valve which would give fool-proof and prolonged service was seriously needed.

Many operators, encouraged by

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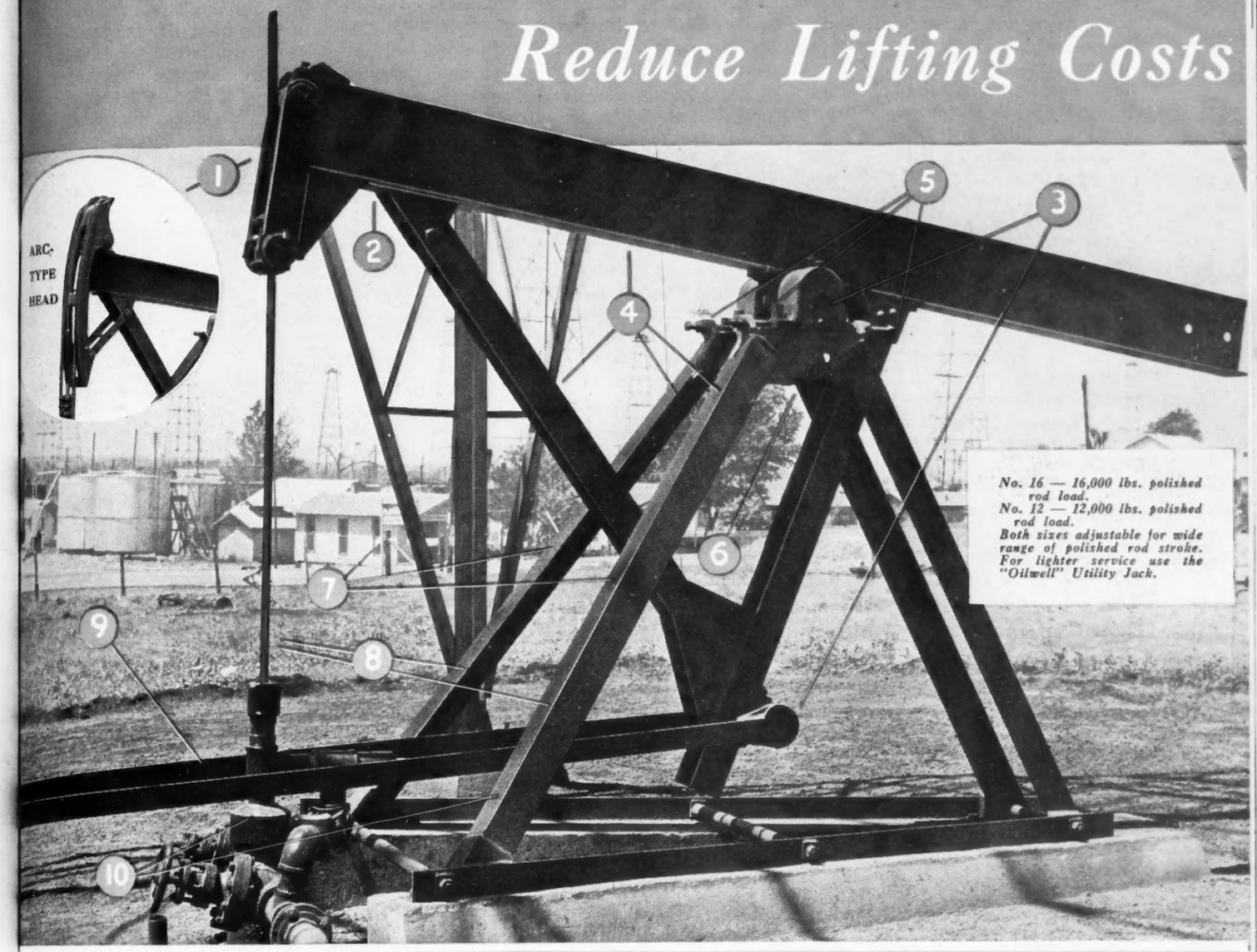

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the highly satisfactory results obtained from the drop and seat in use with the oversize valve, next applied its use to the top and bottom plunger valves and met with equal success. Apparently, the lighter disc-type functioned better in a fluid of a higher gravity while the heavier streamlined drop and seat seemed more adaptable to fluid of a low gravity. No set rule is followed by the field man in this respect, however, and satisfactory results have been obtained when the reverse procedure was followed.

It has often been acknowledged that no other part of the many and intricate units in the present-day pumping equipment receives as much consideration and painstaking care in manufacture than does the fluid valve. Likewise, it might be said, that while in operation, no other part is subjected to a more continual and extraordinary abuse — especially while under particularly adverse or difficult pumping conditions.

Cast, machined, ground, lapped, polished, and treated to withstand corrosion, seats of all better quality fluid valves are manufactured with care and caution. Steel, bronze, or alloy balls are likewise precision-ground, polished, treated, and often individually lapped to the seat. Both ball and seat of quality manufacture are stainless, protected against warping or fluid cutting, and are of the finest metals obtainable for the purpose.

Occasionally, however, despite all precautions taken in manufacture and installation, instances such as are illustrated in Figure 13 occur. Usually, it must be admitted, fluid cutting such as this is found more often in the inferior seat and is attributed largely to improper manufacture and heat treating. A of Figure 13 shows the beginning of a wash that probably was started from the lodging of a foreign particle on the seat edge which, as the ball continued to pound in operation, finally succeeded in nicking the seat edge and afforded the fluid an opening through which it surged under pressure. Eventually, this wash resulted in cutting the seat to that shown in B.

As in the question of cupped and mechanical hold-downs and in the grooved and plain plungers—the use of a particular type and style of fluid valve depends largely upon the opinion of the operator. Many individuals who advocate the ball and seat adhere to that type for any and all conditions. Others, who as staunch advocates of the drop and seat, apply its use exclusively.

At any rate, the intelligent inspection and investigation of any particular piece of equipment plays an important part in making a selection, and the unprejudiced comparison of various types, regardless of make, usually will reveal the proper procedure to follow.

As the importance of pump efficiency in relation to maximum and trouble-free operation becomes more and more apparent to operators throughout the country, the present day is seeing a period of research and experimentation that is resulting in several important developments.

The majority of subjects discussed in this series of articles such as oversize standing valves, close-fit plungers, methods used in combating sand and corrosion, etc., are products of this recent research.

It is also true that the major pumping equipment manufacturers are today eager to cooperate with the field man in solving a particular production problem or hazard. And, in the months to follow, the industry will undoubtedly see further advancements towards the realization of maximum, trouble-free, and efficient production operation.

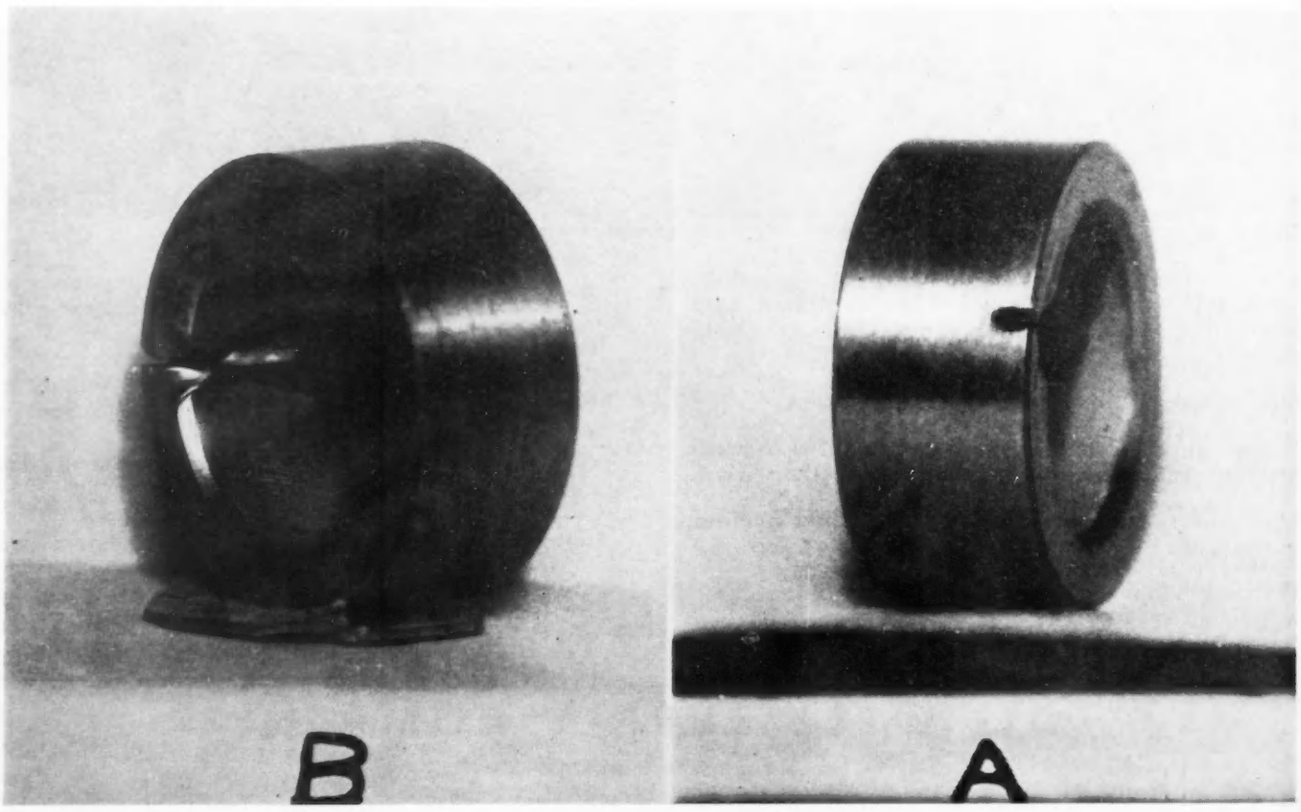

FIGURE 13
Typical examples of fluid cutting in a valve seat

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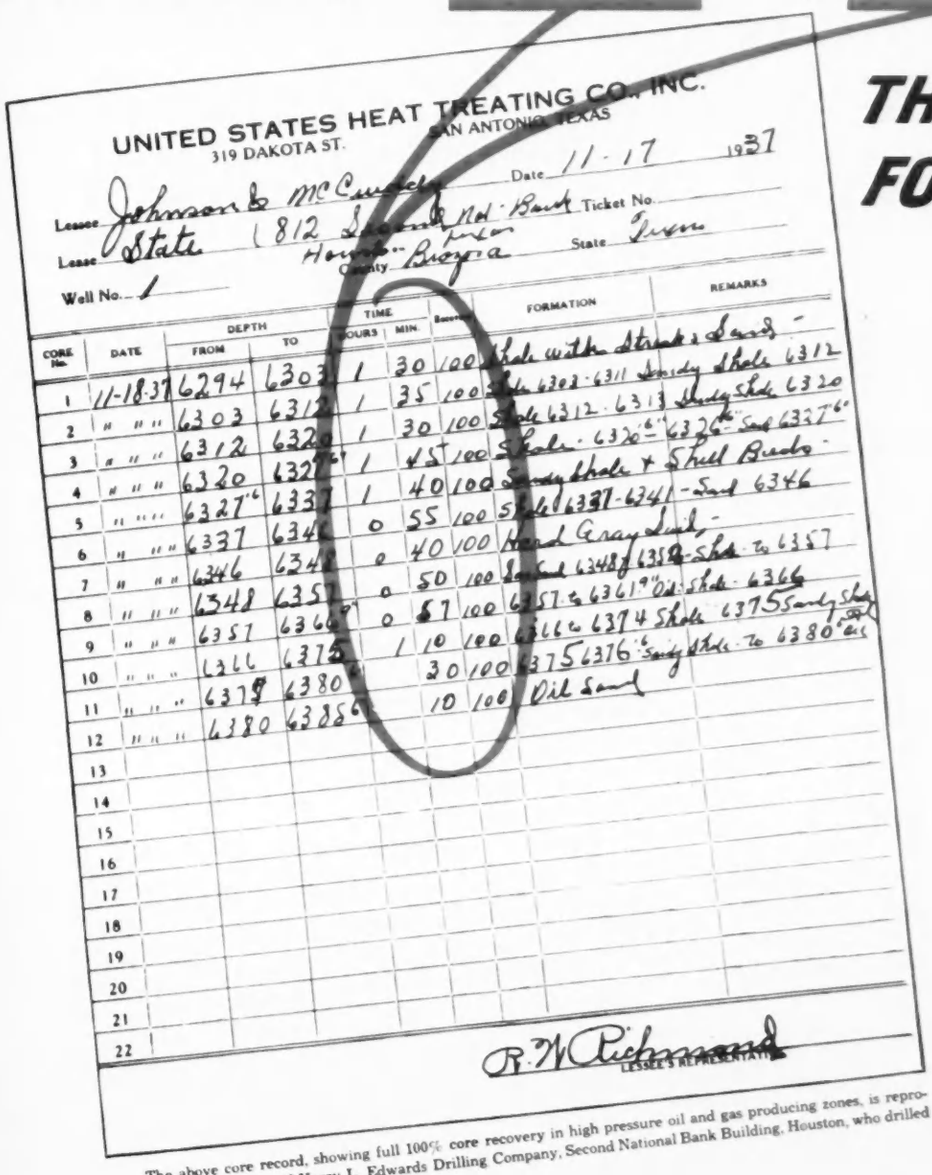

UNITED STATES HEAT TREATING CO., INC.
319 DAKOTA ST. SAN ANTONIO, TEXAS

Date 11-17 1937

Lessee Johnson & McCurdy
Lease State (812 Second Nat'l Bank Ticket No.
Houston Texas
County Brazoria State Texas
Well No. 1

CORE No.	DATE	DEPTH FROM	DEPTH TO	TIME HOURS	TIME MIN.	Recovery	FORMATION	REMARKS
1	11-18-37	6294	6303	1	30	100	Shale with Streaks Sand -	
2	" "	6303	6312	1	35	100	Shale 6303-6311 Shaly Shale 6312	
3	" "	6312	6320	1	30	100	Shale 6312-6313 Shaly Shale 6320	
4	" "	6320	6327'6"	1	45	100	Shale - 6320-6326' Sand 6327'6"	
5	" "	6327'6"	6337	1	40	100	Shaly Shale & Shell Beds -	
6	" "	6337	6346	0	55	100	Shale 6337-6341 - Sand 6346	
7	" "	6346	6348	0	40	100	Hard Gray Sand -	
8	" "	6348	6351	0	50	100	Sand 6348 6351 Shale to 6357	
9	" "	6351	6366	0	57	100	6357 to 6361'6" Oil Shale 6366	
10	" "	6366	6375	1	10	100	6366 to 6374 Shale 6375 Sandy Shale	
11	" "	6375	6380		30	100	6375 6376'6" Sandy Shale to 6380 Oil Sand	
12	" "	6380	6385		10	100		
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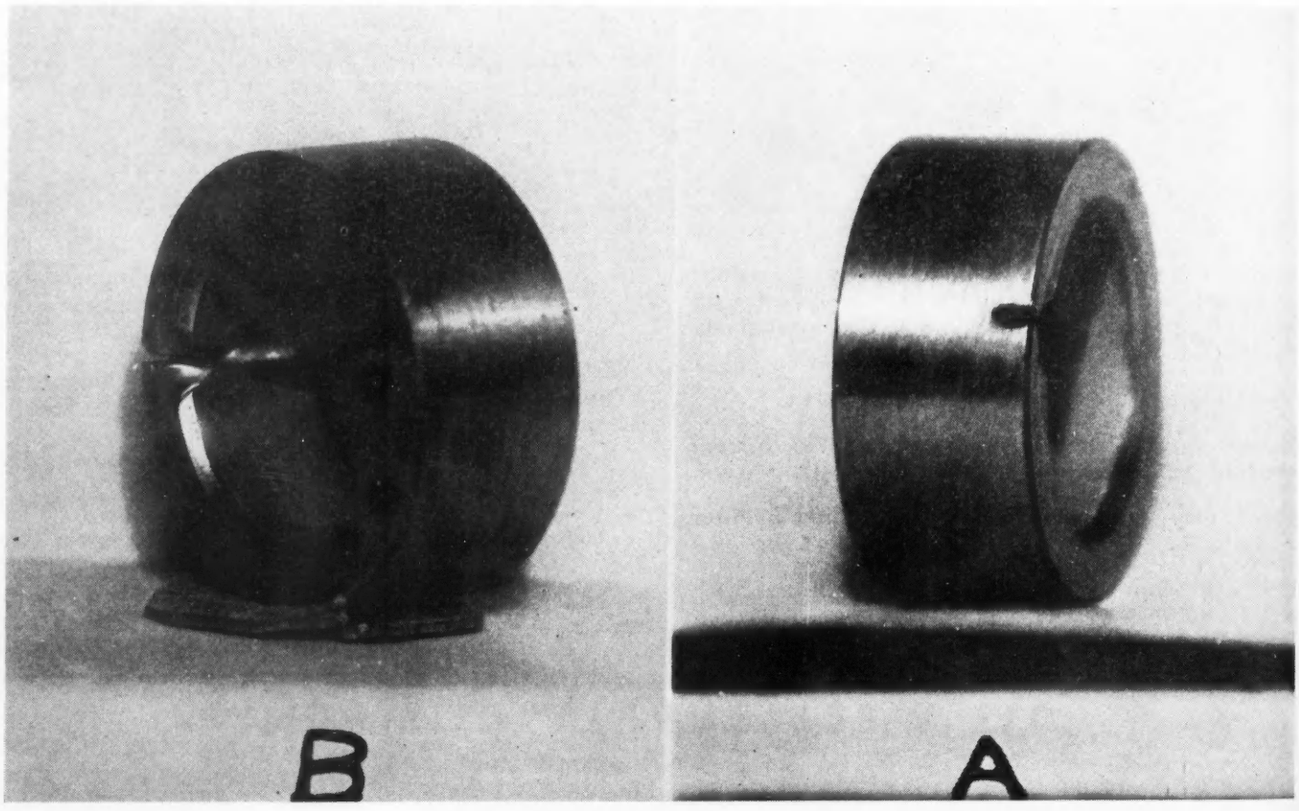

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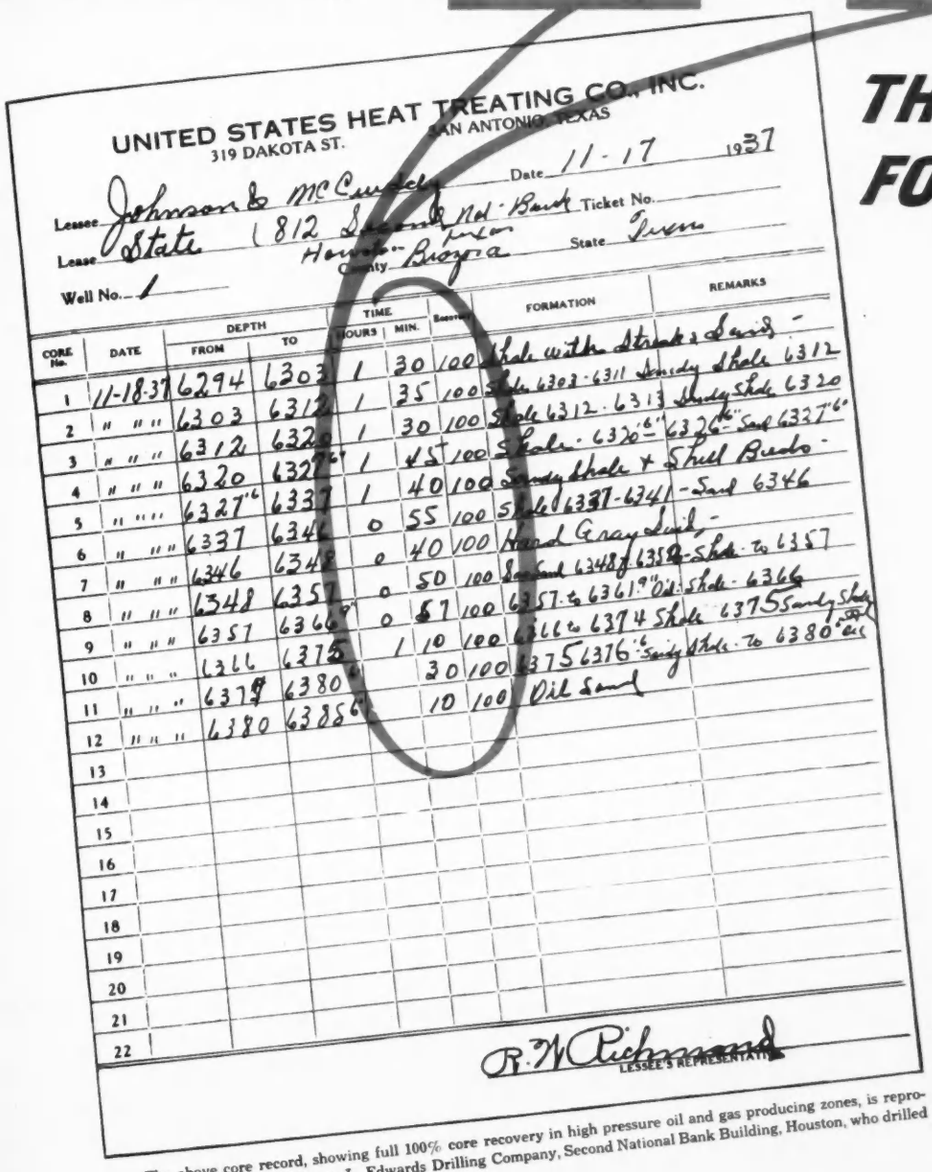

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4	" " "	6320	6327'6"	1	45	100	Shale - 6326'6" - 6326'6" - Sand 6327'6"	
5	" " "	6327'6"	6337	1	40	100	Sandy Shale & Shell Breaks -	
6	" " "	6337	6346	0	55	100	Shale 6337-6341 - Sand 6346	
7	" " "	6346	6348	0	40	100	Hard Gray Sand -	
8	" " "	6348	6357	0	50	100	Sand 6348 to 6351 - Shale - To 6357	
9	" " "	6357	6366	0	57	100	6357 to 6361'9" Oil Shale - 6366	
10	" " "	6366	6375	1	10	100	6366 to 6374 Shale 6375 Sandy Shale	
11	" " "	6375	6380		30	100	6375 6376'6" Sandy Shale - To 6380 Oil Sand	
12	" " "	6380	6388'6"		10	100	Oil Sand	
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Prevention of Oil-Field Emulsions

By J. S. SURFLUH
Standard Oil Company of California,
Los Angeles

PART 2—Conclusion

IN the first installment (OIL WEEKLY, January 17) the author discusses the sources of emulsions in petroleum and here suggests further methods for their prevention—stating that emulsions can be reduced or eliminated by: *a*, reducing the degree of agitation (which is often caused by leaky pumps); *b*, producing physicochemical conditions unsuitable for emulsion formations; and, *c*, separating the water from the oil before agitation takes place. In conclusion, it is stated that some operators have effected greater economies by preventing emulsions than by improving dehydration methods.

This paper was presented at Eighteenth Annual Meeting, American Petroleum Institute, Chicago, November 11, 1937.

The statements and opinions expressed herein are those of the author, and should not be construed as an official action or opinion of the Institute, nor of this journal.

WATER traps[6] have been used frequently for separating water from oil, before the free water has become emulsified by its passage through flow beans or transfer pumps. The water trap is placed on the high-pressure side of the bean. Water traps are frequently made out of casing, and are necessarily of small capacity because of cost. Tanks capable of withstanding the pressure may be used instead of casing. The cost of water traps will usually be about $500, depending on size. Such a trap is incapable of settling out any water unless the water is absolutely free. A great deal of supervision is required to keep the water drained out. It may be possible to use successfully an electrically-controlled valve as an automatic water bleeder. This would obviate one serious disadvantage of these traps. Figure 8 is a diagrammatic sketch of a squeeze trap. The oil inlet is at **A**, and the oil leaves the trap at **B** through a flow bean. The free water settles out of the oil, and is bled off at valve **C**. Pipe **D** will vary in length from 20 to 150 feet. It may slope, as shown in the sketch, or may be horizontal. **E** may be horizontal or may slope toward the water outlet **C**. The water legs, **F**, convey the water from **D** to **E**, and are usually made of smaller-size pipe.

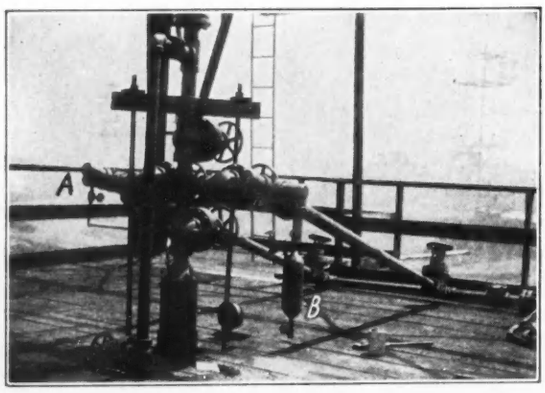

FIGURE 7
Injection Connections Showing Sampling Bomb

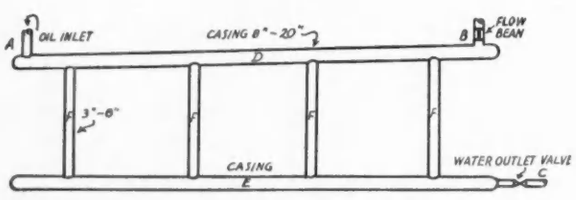

FIGURE 8
Water Trap or Squeeze Trap

Tests show that even many pumping wells do not produce sufficient free settling water to make such a method practical. Flowing and gas-lift wells often do not produce any free water in the top portion of the tubing.

Water traps are, therefore, limited to wells producing large quantities of free water, which will settle out immediately. The cost of a water-gathering system to the wells must be considered in any investigation for determining the advisability of using water traps. Also, in some instances, the oil will have to be dehydrated, even though water traps are used, because not all of the water can be separated; so the saving in dehydrating cost should be determined before installing such a system.

In one instance chemical was being injected on the upstream side of the flow bean of a flowing well for the purpose of dehydrating the oil. It was found that the installation of a water trap permitted a large decrease in chemical required to treat oil. The chemical broke down the emulsion while the oil was in the trap, and permitted the water to be settled out.

Lead-Line Turbulence

Emulsions are often formed in the lead lines extending from the well to the oil tanks. The following causes and remedies will be considered:

Restrictions in Lead Lines. Wax accumulations will sometimes build up to the point where the opening

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in the lead line is reduced to ¼ inch or less, causing excessive pressures and resulting in leaks in tubing and pumps, and causing emulsions. Of course, only certain wells are subject to wax troubles.

The remedy for wax deposition is to put a pressure gage on the lead line at the well, and observe the increase in pressure. When the wax deposit begins to cause an increase in pressure, the wax should be removed. The circulation of hot water has been used successfully, treating 500 feet or less of pipe at one

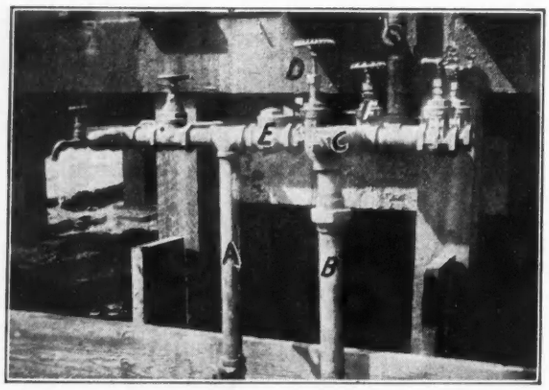

FIGURE 9
Typical Casinghead-Gas Lead-Line Connections

time. Frequently solvents are used, usually with heat. Occasionally heaters are used to keep the production heated sufficiently to obviate wax deposition in the lead lines. Wax trouble occurs during cold weather only. Sometimes fires are placed under the lead line, at intervals of 100 feet or so, to melt out the wax or to prevent its deposition.

It has been reported that the continued injection of dehydrating chemical in the lead line at the well will obviate the accumulation of wax.

Excessive Bends and Fittings. This condition is not found very often, so little consideration need be given to this subject. Restricting fittings such as globe valves or regulating valves will create emulsions, and should be eliminated if possible. On one lease the elimination of excessive bends and restrictions aided in solving the dehydrating problem. Other changes were made, however, which produced greater benefits; so little credit can be given to their elimination.

Gas in Lead Lines. In many oil fields the casinghead gas is connected into the lead line for the chief purpose of saving the expense of constructing a separate gas line, although some operators prefer to liven the oil with gas, hoping to prevent wax accumulation in the lead line and to increase the gravity of the oil.

Many tests have proved that the casinghead gas is often responsible for the formation of additional emulsions. However, some wells produce oil which is difficult to emulsify; and, if the rate of flow through the lead line is low and agitation is kept to a minimum, very little additional emulsion is produced.

Examples of the effect of casinghead gas in the lead line are tabulated in Table 2.

The first seven wells are in the same field and show that, in general, emulsions are formed in the lead line by the presence of casinghead gas. All wells in this field show either an increase in emulsion or a tightness of emulsion, although it is slight in some cases. About 25 percent of the dirty wells can be dehydrated by settling methods, using an excelsior-filled tank or column, without the use of chemical, if the casinghead gas is taken out of the lead line. The other wet wells require chemical or electric dehydration, even though the gas is separated. However, tests have proved that less chemical is required if the gas is removed from the lead line, although in some wells in this field the economy effected would hardly justify the expense of providing a gas line.

Apparently, if the oil and water are nearly all emulsified at the well, the casinghead gas does little harm. The increase in quality and quantity of emulsion was greater in the production containing the least emulsion at the well.

The gas/oil ratio does not seem to be the controlling factor in emulsion formation.

The last five wells are in a different field, and show that, in general, no appreciable increase in emulsion occurred even though the gas/oil ratio is high. There is only one well (No. 11) in the whole field which shows any great increase in emulsion content. The oil in this field is dehydrated by heating and settling. Even though the gas were separated from the lead line, tests show that the heating would still be necessary; hence no advantage can be gained by taking out the gas.

These examples are given to show that oils from the same field react in different manners. Each well represents an individual problem, and tests are required to determine what effect casinghead gas produces in the lead line.

In one large field, oil from several leases and different zones, with a gravity of around 30° API, had been dehydrated by electricity or chemical means for many years. By reducing the casinghead pressure and separating the gas from the lead lines, all of the oil is now being dehydrated by settling—no heat being required—at a saving of approximately 1¼ cents per barrel of oil treated.

In another field the separation of the casinghead gas from the lead line, and eliminating re-pumping of the oil, resulted in the oil being dehydrated by settling means alone—resulting in a saving af about 1½ cents per barrel of oil treated. Both of these fields produce oil which is easily dehydrated; otherwise it would not have been possible to eliminate such a large part of the dehydrating cost.

There are a great number of leases in which the casinghead gas is not separated, and the oil can be

TABLE 2
Effect of Casinghead Gas on Forming Emulsion in Lead Line

Well	Cut at Well			Cut at Gage Tank			Oil (Bbls.)	Gas (1,000 Cu. Ft.)
	Total (Bbls.)	Water (Bbls.)	Emulsion (Bbls.)	Total (Bbls.)	Water (Bbls.)	Emulsion (Bbls.)		
1 [a, d]	42	35	7	50	7	43	200	50
2 [a, d]	30	26	4	34	7	27	200	50
3 [a, e]	8	8	0	9	0.5	8.5	180	120
4 [a, d]	25	4	21	25	4	21	280	50
5 [a, d]	38	16	22	38	16	22	300	90
6 [a, d]	11	7	4	12	0.05	11.5	325	40
7 [a, d]	50	16	34	50	32	18	200	50
8 [b, e]	17	13	4	17	13	4	38	26
9 [b, e]	28	27	1	28	26.5	1.5	36	9
10 [b, e]	36	30	6	36	32	4	35	1
11 [b]	12	10	2	14.5	2.5	12	40	30
12 [b, e]	26	25	1	26	24	2	130	10

[a] 28-deg.-A.P.I. oil.
[b] 19-deg.-A.P.I. oil.
[c] Emulsion very tight at gage tank.
[d] Emulsion slightly tighter than for well No. 3.
[e] Very little change in emulsion.

dehydrated by settling alone; hence no hard and fast rule can be given regarding the separation of casinghead gas. Tests alone will determine what effect the

casinghead gas has in the lead line. Each well may represent an individual problem. Figure 9 represents a typical casinghead-gas lead-line connection. **A** is the lead line; **B**, the wet-gas line conveying the gas away from the well; **C**, the gas-pressure regulating valve; **D** is closed when the gas is separated from the lead line; **E** is a check valve to prevent oil entering the gas line; **F** is a valve to be closed when the gas is permitted to flow into the lead line.

The cost of electric dehydration can often be reduced by separating the casinghead gas from the lead line. It is frequently possible to eliminate the heating of the oil—resulting not only in a saving of 3 to 6 mills for heating, but also additional economies in gravity conservation and power consumption.

The amount of saving will, of course, depend on the quantity of emulsion being formed by the gas. In one case, two wells are being treated by injecting chemical into the beginning of the lead line of the larger well. The production from the other well is discharged into a gas trap with the first well, and the production from both wells then flows into a series of two settling tanks. The separation of the casinghead gas did not reduce the emulsion content appreciably; however, the cut of the first settling-tank overflow was reduced as follows, using the same quantity of chemicals:

	PERCENT WATER AND EMULSION		
	Total	Water	Emulsion
Casinghead gas in flow line	5.4	4.4	1.0
Casinghead gas separated	4.0	3.8	0.2

In this particular case, it can be seen that the separation of the casinghead gas from the lead lines would be unprofitable. The expected economy can be predicted by taking cuts at the beginning and end of each flow line.

If the cost of laying a gas line to a well were $600 and the well will produce an average of 200 barrels of oil per day for the period under consideration, and if the chemical cost per barrel of oil was ½ cent and the contemplated change would reduce the cost of chemical to ¼ cent, the expenditure would be justified, because it would be paid back in less than four years.

Gaging Methods

The oil-gaging method in use affects the formation of emulsions. If gage tanks are used and the oil cannot be gravitated out of the gage tanks to the dehydrating plant, the oil must be pumped—which produces additional emulsion. Data secured in many pumping fields show that this method of gaging is responsible for a large percentage of the emulsion found in the oil, and that the cost of treating a barrel of gaged oil is often increased from 5 mills to 1 cent or more. This is such a common occurrence, and so indisputable, that space will not be given to produce substantiating data. Also the following section, which deals with "transfer pumps," presents data which will cover the effect of pumping oil, regardless of the purpose.

If wells are gaged for 8 hours once a week, only 1/21 of the oil would be so handled; and, if it were possible to have the well convey the oil to the dehydrating plant at all times when not in gage, the effect will not be nearly so severe as when all of the production is re-pumped.

Gravitation of the oil from the gage tanks does not cause emulsion if the velocity is not too great. In one field it was found that the average emulsion content of the oil from about 50 wells decreased 50 percent during the travel of the oil through the gravity line. The emulsion was what would be classed as relatively loose. Oil from a different zone in this same field showed no appreciable change. The gravity of the latter oil was 19° API.

When pumping of gaged oil is required, the injection of chemical into the pump suction will aid in preventing emulsions. Less chemical will be required than if it were introduced into the pump discharge. Field tests made on many pumps, and on large quantities of oil, show that as much as 50 percent more chemical may be required when injected into the discharge line of the pump. It was found that the condition of the pump, as well as the type of pump, made a difference—excessive agitation always causing additional emulsion. Of course, when dehydration is accomplished electrically, chemical is rarely required.

The chemical pump should be mechanically-connected to the oil pump if possible; otherwise an electric-driven chemical pump should be connected to the electric switch of the oil pump, thereby obviating the possibility of oil being pumped without the chemical pump being operated.

The cost of chemical treatment in this manner will cost from 1 mill to 1 cent per barrel of oil—the average being about ½ cent.

Sometimes the water can be settled out without heat after being treated in the above manner.

The use of a suitable oil meter which can be made a part of the lead-line system will obviate the necessity of pumping out gage tanks and will, of course, aid in eliminating the formation of additional emulsion in the oil. If the gaging equipment contains a pressure-regulating valve, controlling the oil flow, some emulsion may be formed when the oil passes through the valve; so the pressure drop should be maintained as low as possible.

No data are at hand to show how much has been saved in any particular instance from eliminating the pumping of gaged oil by using oil meters.

Transfer Pumps

It is intended that this heading should include all pumping or gathering of undehydrated oil after it has been brought to the surface of the ground, except gaged oil.

Tail pumps were commonly used for transferring wet oil in the past, and are still used to a lesser extent. In this service they operate a great deal of the time with only partly-filled barrels, because they are operated continuously and are consequently able to keep the receiving tanks pumped down to the suction-line level. This results in a great deal of emulsion being produced when the oil is wet. A practical remedy is to disconnect the tail pump as soon as the tank is emptied.

Modern practice consists of using electric-driven reciprocating pumps which are operated only when there is oil to be pumped. The control is either manual or by float control.

Even though these improvements are adopted, a great deal of emulsion is formed when transferring oil with pumps.

If the terrain permits, the establishment of a gravity gathering system will usually obviate the forma-

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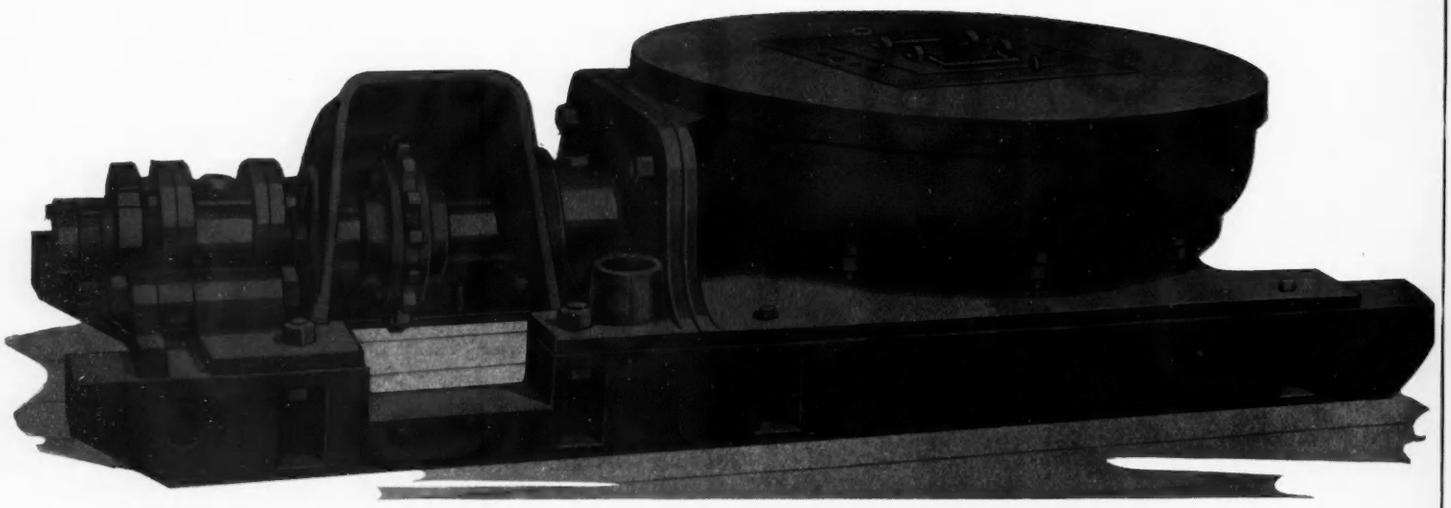

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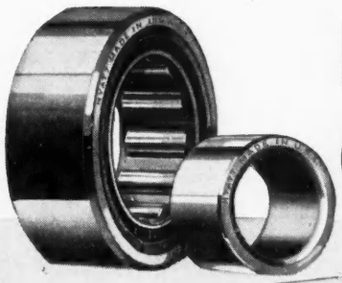
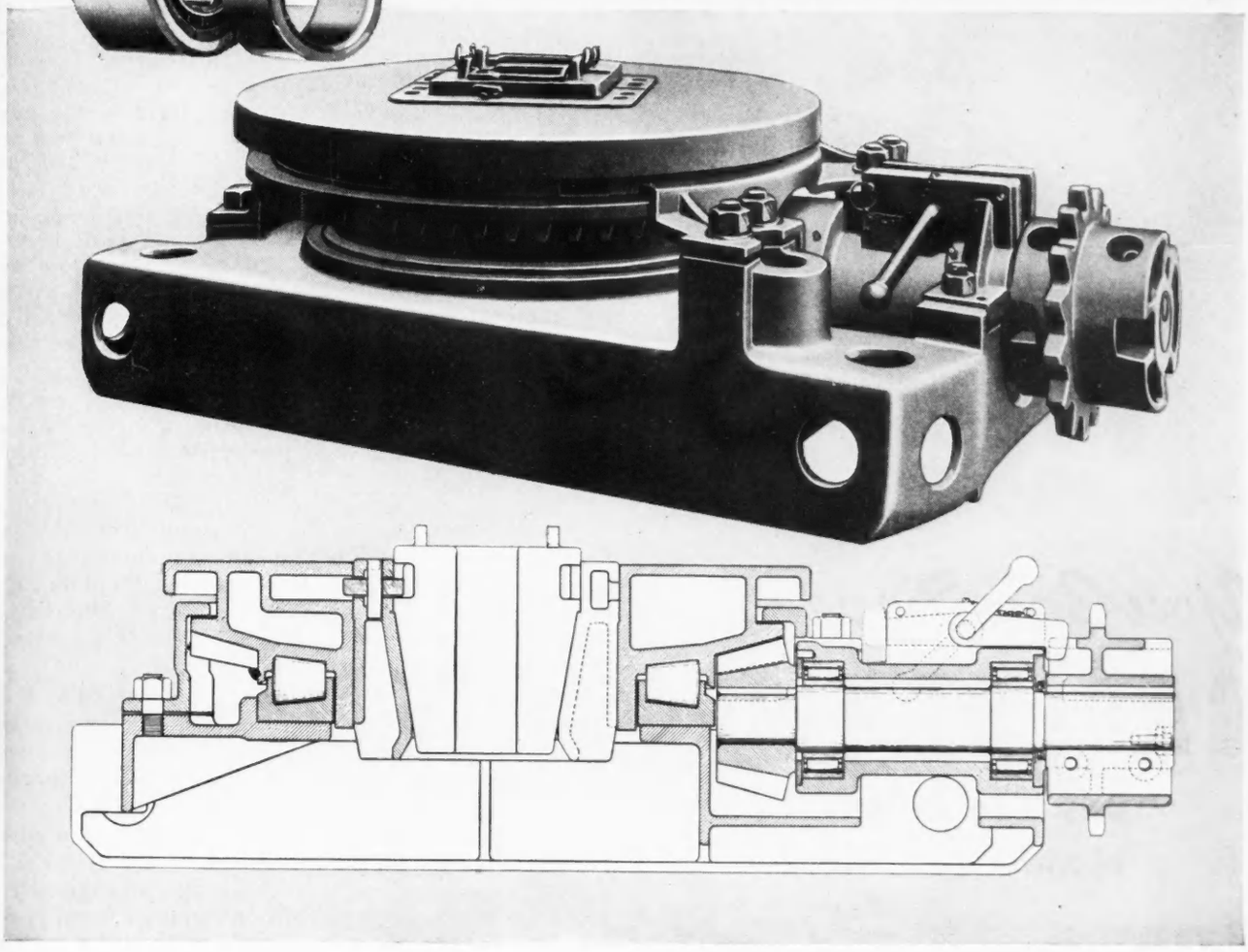


HYATTS in the New GUMBO BUSTER Rotary



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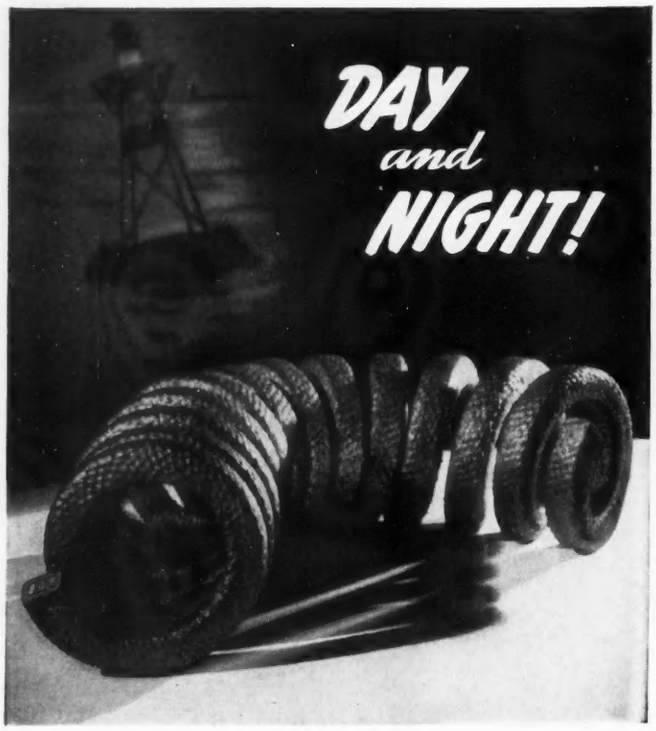

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tion of a great proportion of the emulsion which would otherwise be present due to transferring with pumps.

There are a great number of leases in California on which the oil is gathered by gravity lines, thereby permitting the dehydration of the oil by settling alone. Of course, the separation of casinghead gas from the lead lines is often required to permit dehydration by settling—although not always, as was pointed out previously in this paper.

On some leases on which the oil is now gathered by pumps, tests have proved that if the oil could be dehydrated before being transferred, the cost of dehydration could be reduced from 20 to 80 percent.

Of course, the oil and water will both have to be pumped unless they can be gravitated, but the saving in dehydration cost will usually more than justify the additional investment for a waste-water line and pumps. Some operators provide both a clean and a wet-oil line gathering system in the development of their leases—which, of course, will permit the wet-oil line to be used for waste water.

The following example will show what can be often accomplished by dehydrating the oil before it is pumped from a gathering point to the dehydrating plant.

The cost of treating the oil chemically at the central location, using a hay tank, and heat was 1¼ cents per barrel of oil. The same production is now being treated at the several gathering points at a total cost of 4 mills. No heat is required. The cost of the additional equipment required in this instance can be paid for in less than one year.

Additional reasons for treating the oil as soon as possible is that the deeper wells produce warm oil, and the well temperature can be thus conserved and used; also, emulsions become stabilized with age, especially during the first 24 hours.

The cost of the additional equipment required at these gathering points will vary considerably; but, if 1000 barrels of oil are treated per day, an expenditure of from $1000 to $3000 will be required usually, depending on the equipment required and the method of dehydrating adopted.

Conclusions

The prevention of emulsions can be accomplished by:

1. Reducing the degree of agitation.
2. Producing physicochemical conditions unsuitable for emulsion formation.
3. Separating the water before agitation takes place.

All three methods are used, but the first is the most important.

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Rack of sucker-rods in Bridgeport Township that was removed from wells with corrosive water.

Fight Corrosion

OF PERNICIOUS WATERS OF LAWRENCE COUNTY, ILLINOIS

With Modern Cementing

By J. C. ALBRIGHT

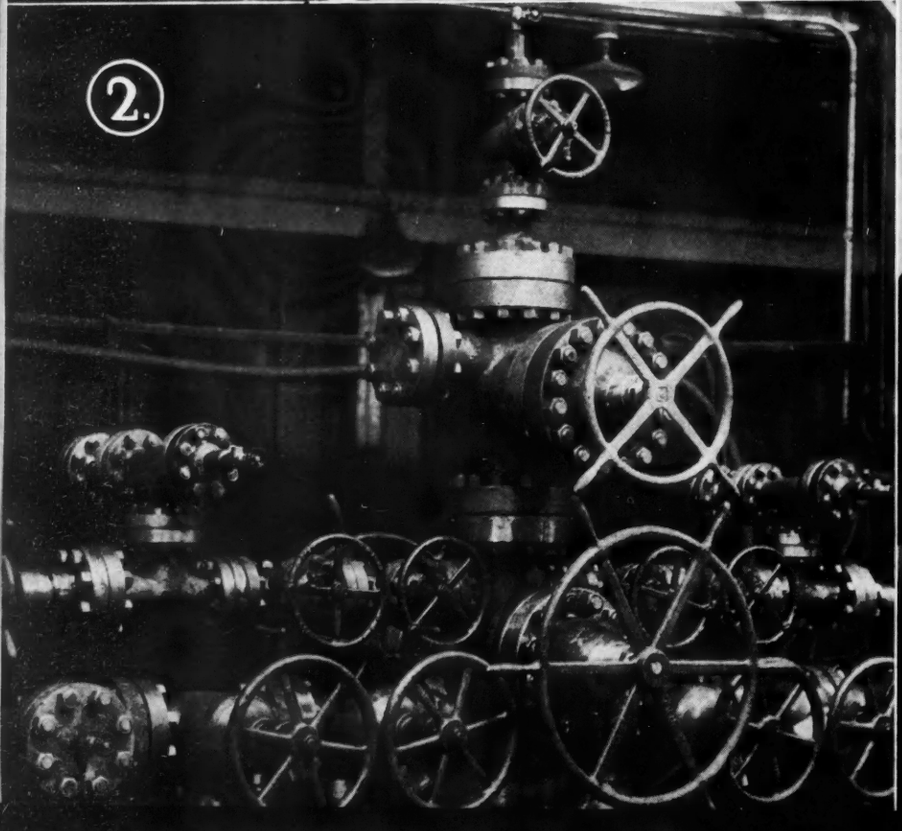
THE old oil fields in Eastern Illinois, lying west of the Wabash River and extending north and south over an area 65 miles long, have produced in 30-odd years of existence considerably more than a half-billion dollars worth of oil. Gas in small quantities has been produced from the glacial drift overlying the greater portion of this country, and oil has been recovered from all of the geological series from the Pennsylvanian down into the Ordovician. Sandstones have been the most productive formations, but a large volume of oil has been produced from dolomites and limestones. The Lawrence County lobe of these fields began to be developed actively in 1907-1908, and of all fields in Eastern Illinois, it was the most promising, in that seven producing formations attracted the attention of operators from all over the country.

The productive formations occur between 800 and 1900 feet below the surface and are known as follows:

Of all productive formations in Illinois, the Buchanan sandstone carries the largest volume of water. It is so prolific down the flanks of the folds that it has been called the "salt sand" and contains a large amount of corrosive compounds in solution in the water. When prospecting for oil in the development period of Lawrence County fields, the drill was usually stopped when only a few feet in the Buchanan, with just enough penetration to afford a safe shot with

1.	Bridgeport....	Upper Lense...	Sandstones in the Pottsville Rocks, lying in the Basal Pennsylvanian from 290 to 600 feet thick with shales between.
2.	Bridgeport....	Middle Lense..	
3.	Bridgeport....	Lower Lense...	
4.	Buchanan.....	.....	Sandstone in Upper Mississippian known as Cypress Formation.
5.	Kirkwood.....	.....	Sandstone known as Bethel formation in lower part of Upper Mississippian and also known as Benoist in Marion County.
6.	Tracey.....	.....	Oolitic limestone in Ste. Genevieve formation in Lower Mississippian.
7.	McClosky....	.....	

What Happened



dat Palacios –

5.

1. When abnormal pressure from below 9200 feet, estimated between 5500 lbs. and 6000 lbs., blew off surface control fittings, this flanged connection was left up.
2. Cameron Iron Works, Inc., was commissioned Saturday, January 8th to build this 10,000 lbs. test control manifold, assembled on a Cameron 10,000 lbs. test type 7-MR Manually Operated Control Head, and a 10,000 lbs. test Type 7-SR Manually Operated Master Gate Valve, fitted with self-feeding gate packers to compensate for cutting action of well stream.
3. Special Manifold arrives on location 48 hours after order issued.
4. M. M. Kinley Fire Extinguishing crew stabbing Control Manifold to flanged casing head.
5. Kinley crew members installing companion flange and nipple to top flange of Cameron Type SR Master Gate Valve, to permit installation of tie-down clamps.
6. Kinley crew swinging flange and nipple into place.
7. Control Manifold stabbed on and bolted and tied down, ready to close Cameron Type SR Master Gate Valve. **While flow connections were being installed and other preparations made, well blew through Cameron Control Manifold from 2:30 P.M. Monday, Jan. 10, to 5:10 P.M. Wednesday, Jan. 12.**
8. **After 50 hours of continuous blowing, when Cameron Type SR Master Gate Valve was finally closed it made a positive shut-off, with no sign of leakage. On a ¾-inch choke, well pressure on Control Manifold gauged 2200 pounds.**

CAMERON IRON WORKS, Inc., 711 Milby St., Houston, Texas

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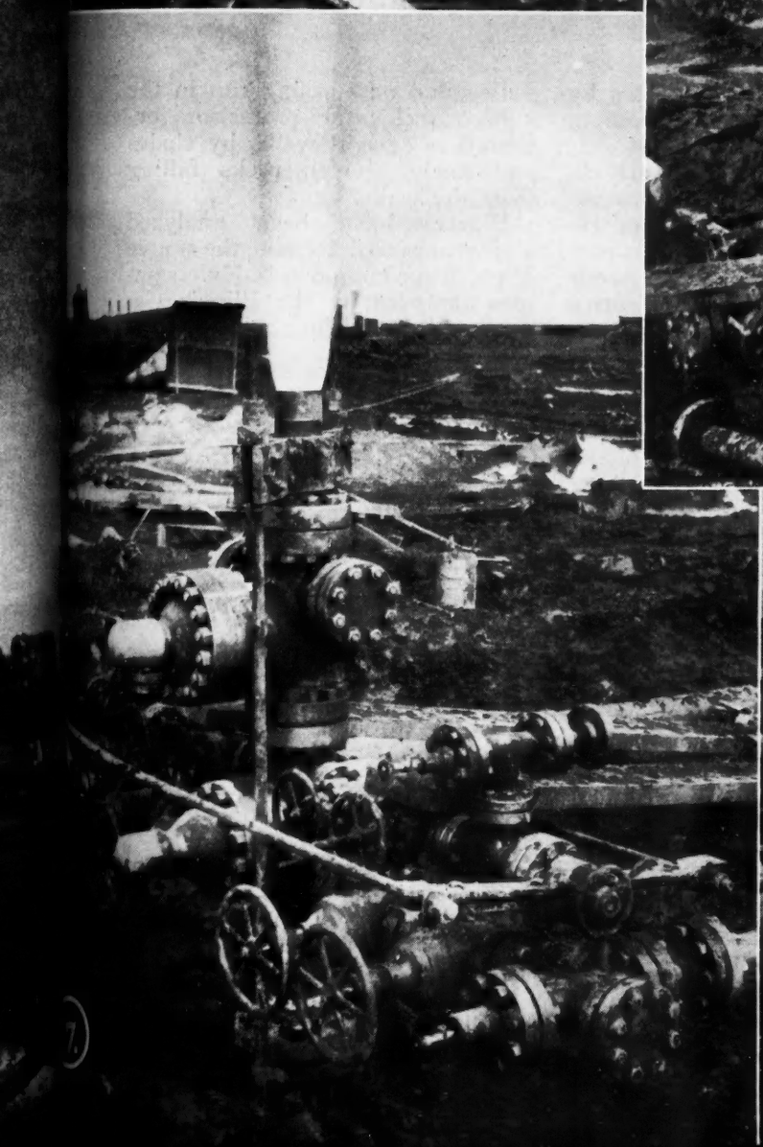
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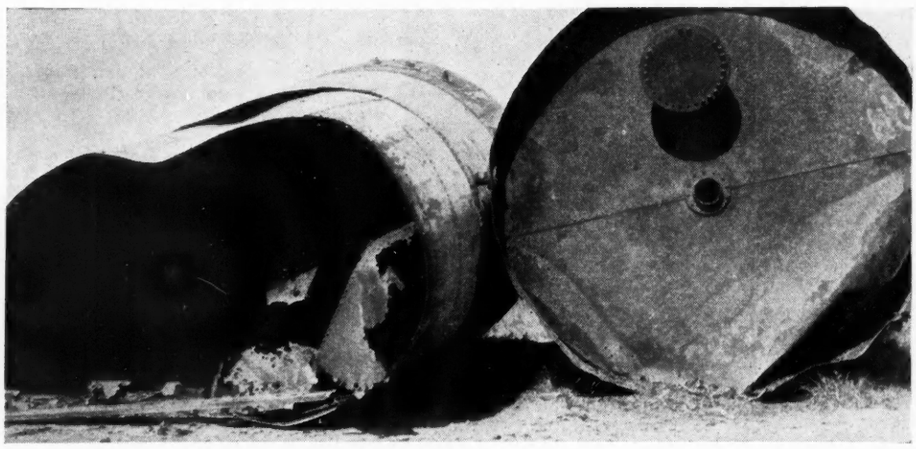
Casing removed from wells contacting the Buchanan sand has all but fallen apart.



Lease tanks come in for their share of destruction. Even the Japanese gun makers would not be interested in this iron.

glycerine. Since these wells were drilled, the Buchanan has produced large quantities of oil, but practically no gas, and the water level has risen until all of these wells now produce corrosive waters, but varying in quantity from one lease to another.

Practically all the failures of equipment is attributed to the corrosive action of water lifted with the oil from Buchanan sand wells, and to water in this sand standing behind casing strings in wells drilled to deeper formations. The effect upon the strings of casing is most pronounced at connections, but any part of a joint may be attacked, where it is seen as pitting, covering large areas. Walls of pipe, reasonably heavy when originally run in the wells, have been reduced by corrosion until they are paper thin, and sometimes entirely eaten away as if the pipe had been immersed in a strong solution of dissolving chemical.

It might be interpreted by some that corrosion and its effects upon ferrous equipment in this field had only recently been discovered, but such is not the case. Corrosion was evident during the first few years, and copperized pipe was said to have been rendered useless by the action of corrosive waters in 20 months, as early as 1914. Efforts were being made as early as this date to reduce the expense incidental to pipe corrosion, and cementing off bottom water was partially successful. However, wells that had begun to indicate corrosion from outside of casing were pulled and new casing run in the holes. Accidental protection occurred in several wells, by shales and finely divided rocks falling from the walls.

Waters have been analyzed many times to determine the source of corrosive compounds. Two samples analyzed by the Illinois Geological Survey show:

	No. 1[1]	No. 2[2]
Determinations, pp million:		
Sodium	5492.37	10385.95
Ammonium	7.73	18.02
Magnesium	0.00	228.95
Calcium	39.07	700.22
Alumina	8.00	6.00
Nitrate	0.00	.35
Chlorine	7414.99	15742.22
Sulphate	627.12	2797.00
Carbonate	614.40	84.00
Residue	14312.00	30382.00
Non-volatile	6.00	122.00
Silica	16.00	6.00
Bicarbonate	1024.00	140.00
Iron	28.00	10.00
Hypothetical Combinations, Grains U. S. Gallon:		
Sodium nitrate	00.00	15.03
Sodium chloride	714.68	1517.46
Sodium sulphate	54.19	28.63
Sodium carbonate	50.35	00.00
Ammonium sulphate	00.00	3.86
Ammonium carbonate	1.20	00.00
Magnesium sulphate	00.00	66.16
Calcium sulphate	00.00	125.38
Calcium carbonate	5.70	10.07
Magnesium carbonate	00.00	.20
Alumina	.46	.34
Non-volatile	.35	7.13
Iron oxide	2.34	.85
Total	830.21	1775.45

[1] Finley No. 37, Section 17, Bridgeport Township.
[2] Jett No. 4, Section 14, Dennison Township.

Not only do these waters destroy casing in many wells in Bridgeport and Dennison townships, but tubing and rods are corroded badly, many strings having replacements as often as three and four times yearly. Cages and balls in standing and traveling valves last no longer than 30 days in some of these wells. Sucker rods become pitted rapidly the full length of the string, and large stacks are seen at all field warehouses in the areas where corrosion is most active.

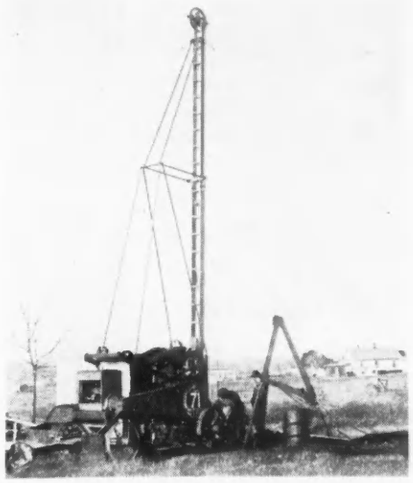
Lead lines, no matter what kind of material they are made from, last only a few months, with corrosion attacking them from the inside only, unless buried in soil near wells and tank batteries where water from the productive sand is bled away or leaks through stuffing-boxes, then, both the exterior and the interior are rapidly eaten away. Galvanized pipe, lead-lined pipe and many other kinds have been placed on leases with corrosive waters, but all are attacked with the same results.

Not only does corrosion attack underground metallic equipment, but due to the heavy mineral content of the corrosive waters, scale is deposited inside tubing and lead lines on some leases. The deposit grows so rapidly in some wells that oil is lifted and pumped through piping with difficulty. Scale deposit in tubing is removed by frequent pulling of rods and cages, but pipe lasts so short a time that the walls are broken down after a few rod jobs, and must be replaced because of pin holes in the walls.

Buchanan water produced from the wells drilled to this sand is frequently prevented from flowing into the oil producing section by bottom hole plugging, but as the field is fairly well depleted, much water must be handled if oil in any quantity is to be secured. The greatest difficulty lies in the fact that in all wells drilled to deeper horizons than this, sand must pass through the Buchanan and pipe run to case off both water and oil. The exterior of the pipe used in these cases is attacked, usually to the height to which the Buchanan water rises in the hole behind the casing. Mudding the pipe has not been of great benefit in preventing corrosion, but in some cases it may have helped.

Cement

Protecting casing with cement was begun several years ago by Ohio Oil Company, about the time that casing was cemented the full length in high-pressure fields and equipment was designed to pump the slurry down the hole. This company decided that a well it had reconditioned could be protected in this manner, and rigged up mixing troughs, pumps and accessories to handle the cement. Portable drilling rigs are utilized to clean the



Type of machine used to recondition wells in the Bridgeport district of Lawrence County, Illinois.

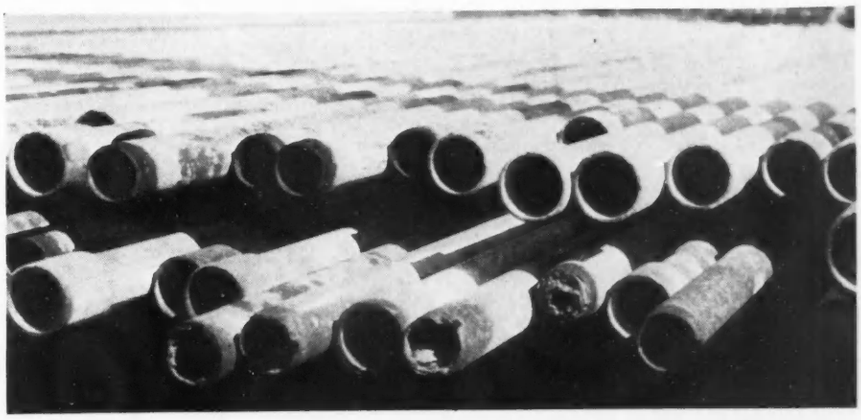
wells, with steam as power to handle tools and draw-works. Pressures developed in the final stages of cementing almost stalled the pump used, but a good job was obtained. Since that time, all cementing has been done by outside companies who have high-pressure equipment capable of handling the job.

Wells that show badly decomposed and corroded casing in wells drilled through the Buchanan, and in some cases the Kirkwood, just below the Buchanan, are cleaned out and casing pulled. The pipe invariably shows many joints that cannot be re-run, and badly eaten sections are discarded. It frequently happens that pipe removed from offending wells show only a few joints that must be replaced, but each joint is inspected to reveal defects in walls and threaded connections. As most of the wells have walls that stand up well, caving is not of frequent occurrence, and by bailing out what material falls back into the hole after the pipe is pulled, a fairly clean job is obtained.

As the company maintains an adequate stock of reclaimed and new pipe in its general warehouse yard at Bridgeport, sufficient pipe is always nearby to replace defective joints removed from the well. As quickly as possible, the pipe is re-run into the well to the original casing seat and preparations made to cement. Methods generally in use are followed when running cement, utilizing high-pressure pumps with automatic slurry jets for mixing, with the cement pumped down the casing on a plug, and followed by a measuring line attached to a plug forced down with water.

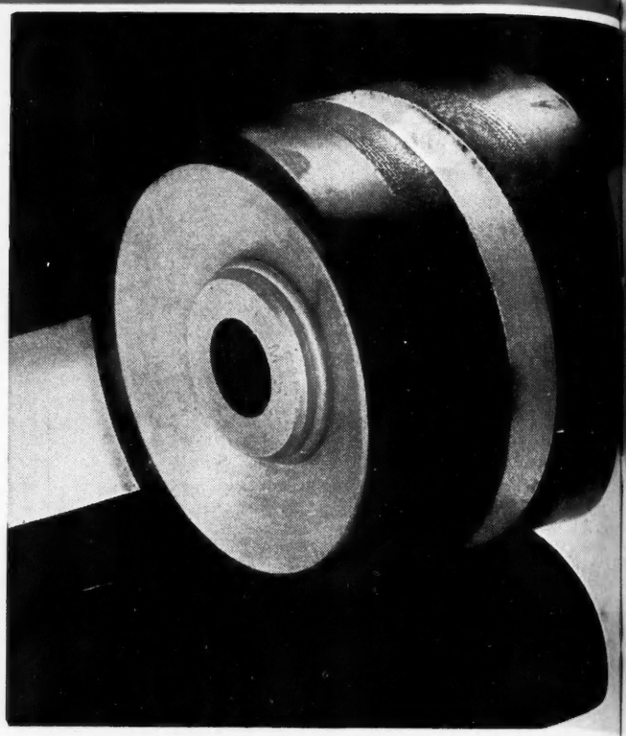
In most reconditioning jobs, sufficient cement is pumped down the casing to obtain complete circulation, but in isolated cases, where corrosion affects parts of the pipe only, this section is blocked off by pumping a smaller amount of slurry down the casing. With modern methods of handling cement, the time consumed in actual cementing operations is comparatively short, with most of the time of reconditioning occupied by pulling pipe, cleaning out and rerunning the casing. In ordinary wells, that is, with the usual amount of cement required, the time given the cement to harden is usually 72 hours, when pressure is removed, the plug drilled out, and the well put back on the pump.

Lead lines not only are corroded beyond usefulness, but also stopped up with scale deposit.



WHY MISSION SLUSH PUMP PISTONS

Decidedly cut pump upkeep cost



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   • • resists any pressure

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   • • eliminates drag

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MEN IN THE INDUSTRY'S NEWS

WALTER B. PYRON, vice president Gulf Oil Corporation, Houston, recently conducted officials of the company on an inspection tour of South Texas oil fields. Accompanying him were F. C. Bothwell of Pittsburgh, vice president; John H. Tucker, production superintendent; Joe H. Russell, vice president in charge of production; F. C. Kincade, pipe line superintendent; H. F. Minor, chief geologist; Ben Bolt, also of Houston; and Joe Dawson of San Antonio, zone agent.

ARNOLD S. BUNTE, district engineer for Shell Petroleum Corporation at McPherson, Kansas, resigned January 15 to join his brother, Jack, formerly of Houston, Texas, in a new producing firm to be known as Bunte Brothers, Inc. The firm will engage in wildcat activity in Western Kansas and maintain offices in the Brown Building, Wichita.

ARTHUR OLSON, Olson Drilling Company, came from Oklahoma to Flora, Illinois, last week to supervise bringing in of Irwin 1, wildcat in Stanford Township of Clay County.

H. A. (BERT) HEMPHILL, West Texas-New Mexico district geologist for Magnolia Petroleum Company, was elected president of the West Texas Geological Society when the membership assembled January 11 at Midland. W. D. Anderson, Amerada Petroleum Corporation, and Wm. C. Fritz, Skelly Oil Company, were chosen vice president and secretary-treasurer, respectively.

FLOYD ROPER, Oklahoma City, an employe of National Tank Company, suffered skull fracture and broken ribs after having been forced off the road east of Cisne, near Flora, Illinois, last week.

K. S. ADAMS, executive vice president of Phillips Petroleum Company, with a group of company officials, inspected the Turkey Creek field, Nueces County, recently discovered by L. A. Douglas, San Antonio, with a well drilled jointly with Phillips Petroleum Company. Included in the party were F. F. Rice, in charge of natural gasoline and gas; F. D. Guidinger, head of Standish Pipe Line Company, a subsidiary; A. H. Riney, chief engineer; C. O. Stark, manager of the land and lease departments; F. W. Alexander, head of the tax department; all of Bartlesville, Oklahoma, and P. C. Murphy of Shreveport, production superintendent for Louisiana and Texas. The party also visited San Antonio, accompanied by N. P. Isenberger, chief geologist, and H. K. Greenleaf, land man for Phillips Petroleum Company in the Corpus Christi district.

W. T. HOBSON, district gauger for Houston Oil Company of Texas, E. F. Osborne of Houston, head of the warehouse department, and Floyd Helman, also of Houston, were in Corpus Christi on business during the past week.

R. S. McFARLAND, vice president of Seaboard Oil Corporation, has been re-elected president of the Dallas Petroleum Club. Four new directors added to the board includes: Ray E. Hubbard, William D. McBee, Carl A. Young and Elmer S. Schmidt.

BENJAMIN F. HAKE, Saginaw, recently-elected president of the Michigan Geological Society, discussed "Crude Oil and Further Development of the Michigan Fields" before the Saginaw Valley Oil Men's Club last week. Program chairmen for the meeting were John G. Schindehette and Maurice Brown.

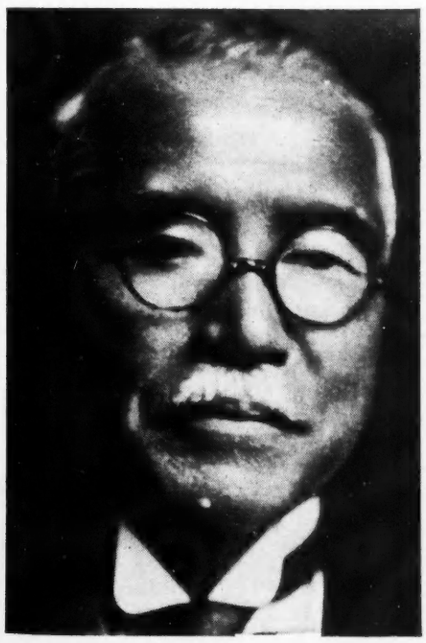
M. A. ABERNATHY, vice president of United Gas Company and a graduate of Texas A. & M. College, class of 1916, gave the principal address at the annual banquet of the Petroleum Engineering-Geology Club of the college on Friday, January 14. His subject was the "Flow of Gas from Gas Wells and Through Pipe Lines."

Don Collins, general superintendent for the Texas-Louisiana-New Mexico Division of Shell Petroleum Corporation also spoke to the assembly on the subject of "Opportunities for the Petroleum Engineering Graduate in the Drilling and Production Departments."

The Petroleum Engineering-Geology Club is a student affiliated chapter of the American Society of Mining and Metallurgical Engineers, and meets at regular intervals at which times outstanding men in the oil and gas industry appear before the club. About 175 students attended the banquet, as well as the faculty members of the Petroleum Engineering and Geology departments.

BRUCE K. BROWN, effective January 17, has been made general manager in charge of research and development for Standard Oil Company (Indiana). He has been with the company since 1929, first as general patent attorney and more recently as manager of the development and patent department.

Brown holds degrees in chemistry and chemical engineering from the University of Illinois. After war service he began his business career as a research chemist for Burgess Laboratories at Madison, Wisconsin. Later he directed research for Commercial Solvents Corporation at Terre Haute, Indiana, and served as the head of its patent and research information departments. Immediately prior to his affiliation with



KEIZABURO HASHIMOTO

Keizaburo Hashimoto, president of Nippon Oil Company, Japan's No. 1 producer, refiner, importer and dealer, has been made president also of Nisso (Nippon-Soviet) Oil Company. He succeeds Kojiro Matsukata who resigned to go to Europe and America as one of Japan's apologists in connection with the current war crisis. He is said to have been so far the most successful of the six "people's envoys," as they are officially styled.

Hashimoto's appointment as concurrent president of the two companies means not only that Nippon Oil Company has acquired complete control of Nisso Oil Company, the only Soviet oil agency in Japan, but also that he will be the central figure in negotiations in April with the Soviet for renewal of the agency contract.

KOJIRO MATSUKATA

Standard Oil Company he was associated with the New York patent law firm of Fish, Richardson and Neave.

Brown is the author of numerous articles and one book relating to nitrocellulose lacquers, and holds a number of patents in the battery, solvent, and petroleum fields. He has been active in the affairs of the American Chemical Society, having been at one time editor of the Chicago Chemical Bulletin, and has also been identified with various patent law groups. He is a member of the Chemists' Clubs of New York and Chicago, the University Club of Chicago, and various professional societies.

In recent years he has been prominently identified with the developing and licensing of various processes in the petroleum industry, being a director of a number of patent-licensing companies, including Gasoline Products Company, Gasoline Antioxidants Company, The Lubrication Corporation, and others.

In his new work he will supervise the activities of the company's various refinery research laboratories, the largest of which is at Whiting, Indiana, as well as the general activities of the company in connection with patents and technical developments.

PAUL L. VAUDOIT is now engaged in the practice of consulting petroleum engineer. His office is temporarily located at his home, 2229 Del Monte Drive, Houston. For the past 11½ years, Vaudoit has been a petroleum engineer with Shell Petroleum Corporation in the Gulf Coast districts of Texas and Louisiana. He is a former United States Bureau of Mines man, and holds an A.B. degree in geology from Leland Stanford Junior University.

DON SCHUMAKER, assistant chief scout for Mid-Continent Petroleum Corporation in Tulsa, fell while playing basketball last week and broke his right arm. He is confined to his home.

R. B. CURRAN, recently appointed chief scout for Carter Oil Company at Tulsa, took over the duties of the new office January 17.

DONALD POLK, formerly a member of the geological department of Carter Oil Company in Illinois, has been transferred to Seminole as scout for the company, succeeding R. B. Curran.

ALBERT WRIGHT, general superintendent, Amiranian Oil Company, was recent visitor in Southern California and returned last week to New York prior to going to Afghanistan, where his company has a large concession.

ING. SOCRATES BROULLON, superintendent of production, Yacimientos Petroliferos Fiscales (Argentine Government Oil Fields) Buenos Aires, and Ing. Francisco Rappallini, Administrador for the Y.P.F. at Plaza Huincul, Argentina, arrived in Southern California the first of the year and will remain for two or three months looking over field operations and equipment in the interests of their company.

L. McKILLOP, field superintendent, Oil Search Ltds., Sydney, New South Wales, who has spent quite a bit of time recently in Southern California and the Mid-Continent, sailed for Australia early this year.

W. L. McCLANAHAN, operator of Mt. Pleasant, Michigan, is making his temporary headquarters in Shreveport, Louisiana, from where he is watching developments in the Miller County extension to the Rodessa field of southwest Arkansas.

D. J. BROWN and **J. B. GRAHAM,** vice presidents of Oil Well Supply Corporation and National Tube Company, respectively, have left Pittsburgh for a business trip through the Mid-Continent.

PAUL R. SMITH was made assistant secretary and treasurer of Warren Petroleum Corporation when the company held its annual meeting last week. Other officers, who were all re-elected, are: W. K. Warren, president; J. A. LaFortune, vice president, and H. E. Felt, secretary.

SEWELL L. AVERY, Chicago, president of U. S. Gypsum Company and Montgomery-Ward & Company, has been added to the directorate of The Pure Oil Company. Avery is also a director of United States Steel Corporation and of Pullman Company.

T. H. BARTON, president of Lion Oil Refining Company, El Dorado, Arkansas, has been named president of the Arkansas A. & M. College trustees.

CHARLES McLEOD, brother of the late Ed H. McLeod who died suddenly of a heart attack early this month, last week was named president of McLeod Oil Company, Alberta operating company.

S. MYRON ZANDMER, president of Terminal Oil Company, Ltd., was in Los Angeles last week arranging for resumption of the company's exploratory program in the Del Bonita or Twin River areas of Southern Alberta.

BILL WILKINSON, of Wilkinson & McClean, Ltd., Alberta equipment supply company, left Calgary last week for a business trip to England where he will visit manufacturers the firm represents in western Canada.

JOHN HARVIE, deputy minister of lands and mines for Alberta, stopped in Calgary last week while enroute to Ottawa.

A. H. MAYLAND, president of Mercury Oils, Ltd., has returned to Calgary, Alberta, following a business trip to Montreal.

JOSEPH R. McGRAW, McGraw Oil Company, Tulsa, was confined to a Tulsa hospital for several days following an operation for a minor ailment.

FRANK MOODIE, operator of Calgary, Alberta, is recovering from serious injuries suffered in an automobile accident two miles south of Midnapore, Alberta, last week.

ROY C. BUSBY, Tulsa, secretary-treasurer of Harmon & Whitehill, Inc., was named potentate of the Akdar Shrine at the organization's annual election January 14.

DEAN METTS, with Humble Oil & Refining Company, Houston, was the principal speaker at the Houston Geological Society's regular weekly luncheon at the Lamar Hotel, January 20. His subject was "Geology of Roanoke Oil Field, Acadia Parish, Louisiana."

A. JACOBSEN, president of Amerada Petroleum Corporation, New York, together with A. M. Blow and E. S. Porter, vice presidents, both of Tulsa, were recently in Houston.

PAUL D. TORREY, with Sloan & Zook Company, Bradford, Pennsylvania, was a recent Houston visitor.

R. R. HOBSON, general manager of Houston Oil Company, Houston, recently made an inspection trip through the East Texas field.

W. H. EASTHAM, formerly superintendent of Sunray Oil Company's Oklahoma and Kansas divisions, has been transferred to the California production division office being established in the Wilmington field. He will have charge of the new office.

DARSIE GREEN, geologist for Pure Oil Company at Tulsa, was speaker at a meeting of the Tulsa Geological Society, held January 17. He spoke on "The Major Divisions of the Permian and the Geologic History of Western Oklahoma."

HAROLD BURT, production superintendent of Westgate-Greenland Oil Company, Corpus Christi, visited Houston recently.

J. W. BLUE and **D. D. JOHNSON** of Standard Oil Company of Kansas were recent visitors in Corpus Christi.

HARUKICHI TAKAHASHI, engineer Formosan Government, Taihoku, Japan, after an extensive visit in Mid-Continent and California, recently left for San Francisco from where he will sail for Japan.

A. van O. KRUYSSE, chief exploitation engineer, Astra Romana Oil Company (Shell Company) Campina, Roumania, has returned to his country after a visit to the various oil fields of the United States

DR. ARMSTRONG PRICE addressed the South Texas Geological Society, January 21, at the Plaza Hotel Deck, Corpus Christi. He discussed "Geology of the Rio Grande Delta."

DIED:

GEORGE A. BURKE, 74, retired vice president of Standard Oil Company of Ohio, died January 13 in New Orleans, Louisiana, of a heart attack. Born in Ogdensburg, New York, he made his home in Cleveland, Ohio, since a boy. His first employment with Standard Oil Company was in 1888 and he was with the company continuously until his retirement a few years ago. Survivors include a son, Wallace, of New York, an official of Socony-Vacuum Oil Company.

JAMES E. GRATTAN, 51, for 19 years in the land department of Empire Oil & Refining Company at Bartlesville, Oklahoma, until three years ago when he went to Kansas to engage in oil development, died January 16 at Wichita following a brief illness. He was founder and first president of the Kansas Petroleum Royalty Owners' Association, organized a year ago.

Firm Gasoline Helps

Continued stability in face of too much stocks lends strength to crude structure which is in precarious state

THE oil industry's markets have continued generally steady for several weeks, following the earlier declines of prices.

Despite the excessive stocks of gasoline on hand, the quotations on that product finally have become better stabilized, and no further reductions have occurred in the past few weeks.

This better performance of the gasoline market has given the whole market situation a better aspect.

Most Products Stable

The prices of most other products as well as crude oil have been largely unchanged throughout the recent months of sagging gasoline prices, and those other items still retain their stability.

In fact, there have been some small increases in the past 10 days in the refinery prices of kerosene as well as some of the lighter grades of fuel oil, used in heating homes.

The market for the heavier oils, used in industrial activity, however, has continued relatively inactive, because of decreased general business.

Crude Market

The crude oil market remains in a somewhat precarious position, because of the weak gasoline market. Producers are hoping, however, that the established crude postings will be maintained. And several recent favorable developments have furnished support for this hope.

The leading producing states probably will continue in February to exert exceptionally strict control over production, and the output of the wells likely will continue in close conformity with market requirements. In fact, the production in recent months has been actually below market needs, and some further reductions of storage have been effected.

Pipe Line Proration

Neverthless, the crude market has not been particularly firm lately. This fact is evidenced by spreading of pipe line proration of crude purchases in the Mid-Continent. Several companies last week joined others who previously had announced reductions in crude oil purchases. The lower purchases are scheduled to continue to the end of January.

For example, Sinclair Refining Company's pipe line division notified gaugers to run 10 percent less crude from Oklahoma and Kansas connections.

In Kansas, Kanotex Refining Company cut its purchases in Cowley and Sumner Counties to 70 percent of the allowable production. The company is connected to wells having allowables aggregating 5500 barrels daily, indicating the concern will cut about 1650 barrels a day from its purchases.

Shell Petroleum Corporation cut its crude purchases from Lea County, New Mexico, wells 10 percent, or about 3000 barrels daily.

Phillips Petroleum Company recently curtailed its purchases in Kansas about 3800 barrels daily.

Stanolind Crude Oil Purchasing Company reduced takings in Ellis County, Kansas, about 1600 barrels a day.

Michigan Proration

In Michigan last week a 20-barrel per well proration schedule was adopted by the Buckeye Producers Committee, effective January 19, on 345 wells in Buckeye, Gladwin County field.

The move occurred following two weeks of conferences by operators in an attempt to peg prices back to the former level of $1.24 per barrel.

The 75-barrel voluntary proration, in effect since June, 1937, received only about 65 percent support. The new schedule is not expected to draw more than 50 percent support.

A 20-barrel flat proration would cut Buckeye daily runs from 24,000 barrels daily to about 7000 barrels.

Some pipe line officials declared the proration plan is in violation of anti-trust laws, in view of the fact it is a price fixing rather than conservation or production-market equalization plan.

The Buckeye area produced 52 percent of the whole output of the state in December.

Refinery Prices

U. S. motor gasoline ranged in the Oklahoma market last week about as follows: 62 octane and below 4 to 4¼ cents a gallon; 63 to 66 octane, 4⅜ to 4½ cents; 67 to 69 octane, 4⅝ to 4⅞

Trends of United States Production and Stocks

Figures are from American Petroleum Institute weekly reports, except those on crude stocks, which are from Bureau of Mines weekly reports

WEEK ENDED	Crude Oil Production (Barrels Daily)	Crude Runs to Stills (Barrels Daily)	Crude Oil Stocks (Barrels)	Gasoline Stocks (Barrels)	Gas & Fuel Oil Stocks (Barrels)
January 2, 1937	3,121,400	3,030,000	287,659,000	62,661,000	106,330,000
January 30	3,194,050	2,995,000	285,384,000	69,540,000	102,078,000
February 27	3,296,100	3,085,000	288,121,000	78,786,000	99,534,000
March 27	3,431,300	3,060,000	293,587,000	*83,538,000	96,591,000
April 24	3,496,400	3,125,000	300,737,000	82,303,000	94,100,000
May 29	3,573,000	3,245,000	306,445,000	78,758,000	96,139,000
June 26	3,529,600	3,235,000	307,679,000	75,427,000	100,395,000
July 31	3,591,900	3,425,000	308,250,000	70,872,000	108,209,000
August 29	*3,731,450	3,425,000	309,506,000	66,997,000	112,111,000
September 25	3,666,300	*3,455,000	307,974,000	65,620,000	116,472,000
October 2	3,647,450	3,400,000	309,036,000	65,266,000	117,076,000
October 30	3,602,950	3,345,000	307,140,000	66,836,000	121,070,000
November 27	3,425,800	3,325,000	304,156,000	68,544,000	121,616,000
December 25	3,492,600	3,245,000	303,294,000	74,437,000	118,659,000
January 1, 1938	3,436,600	3,320,000	303,468,000	77,291,000	118,660,000
January 8	3,437,100	3,210,000	303,078,000	79,331,000	119,146,000
January 15	3,476,900	3,240,000	.....	80,947,000	118,962,000
January 16, 1937	3,184,650	3,045,000	†287,659,000	66,559,000	104,841,000
Change in past year	+9.3%	+6.4%	+5.3%	+21.6%	+13.5%

* All time peak. † Stocks January 2, 1937.

cents; and 70 to 72 octane, 4⅞ to 5¼ cents.

Corresponding prices in the Chicago market were as follows: 3¾ to 4¼ cents, 4 to 4½ cents, 4⅜ to 4⅝ cents, and 4½ to 5 cents.

In East Texas the most common gasoline, 60 - 62 400 end - point, was priced generally at 4⅛ to 4¼ cents a gallon.

Kerosene prices f.o.b. Oklahoma refineries ranged from 4¼ to 4½ cents a gallon for the 41-43 water white grade, and from 4¼ to 4⅝ cents for the 42-44 water white grade. Corresponding prices in the Chicago market were: 4¼ to 4⅜ cents and 4¼ to 4⅝ cents.

Fuel oil prices were mostly unchanged. In the Chicago market range oil was priced from 4⅛ to 4½ cents a gallon. The No. 1 white oil was priced from 4⅛ to 4⅜ cents, and the No. 1 straw from 4 to 4⅛ cents. No. 2 straw was 3⅞ to 4 cents and No. 2 dark from 3⅝ to 3¾ cents. No. 3 oil was 3½ to 3⅝ cents. No. 4 was $1.05 to $1.10 a barrel to domestic consumers and 95 cents to $1.10 to industrial buyers. No. 5 oils were 80 to 85 cents for domestic and 77½ to 85 cents for industrial sales. The No. 6 oil was quoted to the usual industrial customers at 50 to 55 cents a barrel.

Bartlesville, Okla.—The Northeast Oklahoma Chapter, The American Petroleum Institute, will hold its next meeting here January 26. The meeting was previously scheduled for January 12 but was postponed because of the death of M. R. Shaffer of Cities Service Oil Company.

Summary of Wells Completed in the United States Week Ending January 22, 1938

	Completions	Oil Wells	Gas Wells	Failures	Initial Production	Total, 1938	Total this Date, 1937
Alabama	.....	.....	.....	.....	.....	.....	.....
Arkansas	4	4	.....	.....	2,093	19	.....
California	24	18	.....	6	9,125	70	76
Colorado	.....	.....	.....	.....	.....	2	2
Florida	.....	.....	.....	.....	.....	.....	.....
Illinois	20	13	.....	7	2,889	73	.....
Indiana	.....	.....	.....	.....	.....	6	9
Kansas	38	27	4	7	48,633	160	146
Kentucky	11	4	2	5	85	56	36
Louisiana	26	16	2	8	7,111	95	41
Michigan	13	9	.....	4	1,134	60	72
Mississippi	.....	.....	.....	.....	.....	2	.....
Montana	.....	.....	.....	.....	.....	4	7
Nebraska	.....	.....	.....	.....	.....	.....	.....
New Mexico	8	7	1	.....	7,808	38	52
New York	2	.....	2	.....	.....	5	.....
Ohio	22	7	8	7	126	80	168
Oklahoma	51	29	5	17	10,139	155	218
Pennsylvania	6	.....	3	3	.....	20	7
Texas	233	179	12	42	280,508	911	955
Utah	.....	.....	.....	.....	.....	.....	.....
West Virginia	17	3	8	6	16	74	48
Wyoming	.....	.....	.....	.....	.....	6	10
Total this week	475	316	47	112	369,667	1,836	1,847
Total last week	470	314	53	103	461,963	.....	.....
Total this year	1,836	1,207	184	445	1,492,424	.....	.....

CRUDE OIL PRICES

Complete tables of prices paid for crude oil at the well in principal fields is shown on page 46 of the issue of January 3. This schedule will appear only in the first issue of each month.

Illinois line booster to 32,000 barrels daily

Olney, Ill.—Installation of a third pumping unit at the Noble station of Wabash Pipe Line Company's line connecting the Clay-Richland-Wayne County area in the Illinois coal basin region to a trunk line at Martinsville has been completed, according to Joe Meehan, superintendent for the company. The unit boosts the line's capacity by 8000 barrels daily, bringing total carrying capacity to between 32,000 and 33,000 barrels of crude. Wabash Pipe Line Company, a subsidiary of The Pure Oil Company, completed the line proper in October. Two 5000-barrel and two 10,000-barrel working tanks are under construction at the Noble station to further facilitate the line's operation.

Complete survey for line from Lisbon to railroad

Shreveport, Louisiana.—Survey of right-of-way for the proposed pipe line from the Lisbon field to the Louisiana & Arkansas Railroad near Minden, Louisiana, a distance of 28 miles has been practically completed by engineers employed by Ouachita Pipe Line Company (Barbour & Woods). Some detailed work of the survey remains to be done at each terminus.

20-mile gas line for Houston area

Houston.—Channel Gas Corporation intends to develop the Bammel gas area, 20 miles north of Houston, and supply natural gas fuel for new industries in the Houston district. The decision was reached following a meeting of the stockholders last week. A 14-inch natural gas line to the Houston industrial district will be laid. Construction of the transportation system and drilling of additional wells will commence immediately.

Comparison of Permits Granted for New Wells

STATE	Week Ending Jan. 22	Total this Mo.	Total this Year	Total This Date Last Year	1937 Year Total
Arkansas	6	16	16	.....	240
California	30	125	125	78	1,584
Louisiana	15	87	87	58	1,227
Kansas	40	126	126	132	2,663
Michigan	13	43	43	51	958
Oklahoma	50	126	126	168	2,711
Texas	225	809	809	897	17,238
Total	379	1,332	1,332	1,384	26,621

Production Increases Further

All principal producing states responsible for increase of 18,250 barrels.

UNITED STATES crude oil production showed a further increase of 18,250 barrels in the week ended January 22, having averaged 3,487,875 barrels daily. That was 81,075 barrels more than the output suggested by the Bureau of Mines as required during January.

Responsible for the substantial increase over the previous week was principally Kansas and Texas with about 15,000 barrels, which was followed by California, Louisiana and Oklahoma.

Texas last week averaged 1,390,450 barrels daily, which was 5250 barrels a day more than in the previous week, 39,550 more than the Bureau of Mines estimate and 32,877 barrels more than the state allowable.

Kansas output was up 9875 barrels at 190,075 barrels daily, having been 10,775 barrels above the Bureau of Mines recommendation and 3603 barrels above the allowable prescribed by the state.

California had a gain of 1700 barrels, averaging 710,700 barrels daily, which was 32,400 barrels a day more than the federal allocation and the recommendation of the Central Committee of California Oil Producers.

Louisiana last week averaged 250,675 barrels daily, or 1100 more than in the previous week. That was 12,275 barrels more than the Bureau of Mines recommendation, but 5325 barrels less than the state allowable.

Oklahoma showed a small gain of 50 barrels, averaging 543,650 barrels daily, which is 22,950 barrels less than the Bureau of Mines estimated demand and 6350 barrels below the state allowable.

Argentine imports show increase in third quarter

An examination of imports into Argentina of petroleum and derivatives during the third quarter of 1937 reveals increases in receipts of fuel oil, crude petroleum and gas oil, and a sharp decline in Diesel oil, as compared with the previous quarter, according to the United States Department of Commerce.

Imports of gasoline in bulk and in drums fell from 5,035,311 liters for the three months ended June 30, to 543-805 liters for the third quarter, The OIL WEEKLY was advised January 5.

Crude oil imports rose from 133,377,-416 kilograms in the second quarter to 155,101,044 kilograms in the quarter ended September 30.

Relatively unimportant gains were recorded in exports of fuel oil and Diesel oil during the third quarter, but outgoing shipments of gas oil showed an increase over the preceding quarter of roughly 77 metric tons.

Losses were registered in exports of gasoline, mineral oils and lubricating greases, while kerosene exports increased by more than 300 percent.

United States Crude Oil Production

Estimates Compiled by The OIL WEEKLY

DISTRICT OR STATE	Bureau of Mines Recommendation (Daily in Jan.)	State Allowable in January	BARRELS DAILY FOR WEEK ENDED	
			January 22	January 15
TEXAS—				
Texas Panhandle	.....	.....	67,950	70,100
North Texas	.....	.....	72,400	73,200
West Central Texas	.....	.....	32,500	32,600
West Texas	.....	.....	199,200	198,100
East Central Texas	.....	.....	87,600	86,200
East Texas Field	.....	.....	493,200	493,100
South Texas	.....	.....	239,400	238,400
Texas Gulf Coast	.....	.....	198,200	193,500
Total Texas	1,350,900	1,357,573	1,390,450	1,385,200
CALIFORNIA—				
Long Beach	.....	.....	57,500	57,500
Santa Fe Springs	.....	.....	40,700	40,500
Huntington Beach	.....	.....	36,500	36,000
Dominguez	.....	.....	30,000	30,000
Inglewood	.....	.....	15,500	16,500
Ventura Avenue	.....	.....	35,500	35,500
Seal Beach	.....	.....	8,000	9,000
Midway-Sunset	.....	.....	77,000	77,000
Elwood	.....	.....	8,000	8,000
Kettleman Hills	.....	.....	84,000	81,000
Mountain View	.....	.....	14,500	14,500
Playa del Rey	.....	.....	7,500	7,500
Wilmington	.....	.....	61,000	62,000
Others	.....	.....	235,000	234,000
Total California	678,300	*678,300	710,700	709,000
OKLAHOMA—				
Oklahoma City	.....	.....	119,950	121,950
Seminole Area	.....	.....	107,075	94,575
Crescent	.....	.....	7,600	7,750
Lucien	.....	.....	11,600	11,250
Fitts	.....	.....	71,325	73,925
Edmond	.....	.....	8,975	8,900
Moore	.....	.....	9,675	9,500
Others	.....	.....	207,450	215,750
Total Oklahoma	566,600	550,000	543,650	543,600
LOUISIANA—				
North Louisiana	.....	.....	80,375	79,475
South Louisiana	.....	.....	170,300	170,100
Total Louisiana	238,400	256,000	250,675	249,575
KANSAS—				
Ritz-Canton	.....	.....	5,300	5,100
Chase	.....	.....	7,500	5,200
Hollow-Nikkel	.....	.....	2,475	2,300
Sedgwick	.....	.....	3,800	3,275
Burrton-Haven	.....	.....	12,200	10,100
Lorraine	.....	.....	3,150	2,775
Russell County	.....	.....	32,650	33,300
Silica, West	.....	.....	18,250	16,100
Silica, South	.....	.....	3,000	3,400
Others	.....	.....	101,750	98,650
Total Kansas	179,300	186,472	190,075	180,200
NEW MEXICO	103,100	107,100	107,150	107,100
MICHIGAN	54,100	.....	50,700	51,500
ARKANSAS	35,200	.....	41,025	41,050
MOUNTAIN STATES—				
Wyoming	55,500	.....	49,900	46,100
Montana	13,100	.....	14,050	14,100
Colorado	4,300	.....	4,600	4,400
Total Rocky Mountain States	72,900	.....	68,550	64,600
EASTERN STATES—				
Pennsylvania Grade	.....	.....	78,400	80,500
Southern Illinois (New Pools)	.....	.....	25,200	25,300
Illinois-Indiana (Old Pools)	.....	.....	10,900	10,500
Others, Eastern	.....	.....	20,400	21,500
Total Eastern States	128,000	.....	134,900	137,800
Total United States	3,406,800	.....	3,487,875	3,469,625

*Recommendation of Central Committee of California Oil Producers.

Western Metals program includes oil metallurgy

Based on the theme, "Metals in Industry," the Western Metal Congress and Exposition, March 21 to 25 in the Pan-Pacific auditorium and Biltmore hotel, Los Angeles, is expected to attract 3000 executives, plant operators, metallurgists and superintendents to the congress and many thousands to the exposition.

The exposition, held in Los Angeles eight years ago, was attended by 60,000, but William H. Eisenman, secretary of the American Society for Metals, said an earnest effort will be made to eliminate curiosity seekers and attract only 25,000 interested men, who are definitely connected with the fabrication of industrial metals.

Eighteen national technical societies are cooperating in the event, including: American Chemical Society, American Foundrymen's Association, American Institute of Aeronautical Engineers, American Institute of Electrical Engineers, American Institute of Mining and Metallurgical Engineers (Institute of Metals), American Petroleum Institute (California division), American Society of Civil Engineers, American Society of Mechanical Engineers, American Society for Testing Materials, American Welding Society, Chamber of Mines and Oils, Metal Trades and Manufacturers' Association, Mining Association of the Southwest, National Purchasing Agents' Association, Pacific Coast Electrical Association, Pacific Coast Gas Association, Society of Automotive Engineers and the American Society for Metals.

The American Welding Society, American Society of Mechanical Engineers and the Pacific Coast Gas Association will meet independently in their own sessions during the week of the congress and exposition.

Particular attention will be paid by the congress to metals used in the petroleum, aviation, general manufacturing, chemical and mining industries. Speakers from all parts of this country will participate in the educational program.

A series of five educational and informative lectures on the manufacture, treatment and application of iron and steel will be presented by Dr. A. Allan Bates, formerly professor of metallurgy, Case School of Applied Science. Dr. Bates now is manager of the chemistry and metallurgical department of Westinghouse Electric and Manufacturing Company, Pittsburgh.

Wives, who accompany their husbands to the congress, will find a brilliant program of entertainment arranged for their enjoyment. This program will include visits to the movie studios, Huntington Library, Pasadena, Santa Monica, Beverly Hills and other points of interest, as well as a series of lunches and the banquet of the convention in the Biltmore Bowl.

The program for the congress, arranged by a committee representing all the cooperating societies, under chairmanship of Dr. Donald S. Clark, of California Institute of Technology, includes the following of particular interest to oil industry engineers:

Petroleum Sessions

Metals Used in Petroleum Production: Well Casings, Drills, Sucker Rods, etc.—Harry McQuaid, Republic Steel Corporation, Cleveland.

Metals Used in Pipe Line and Pipe Line Station Construction—L. F. Scherer, Texas Pipe Line Company, Houston.

Corrosion Protection of Pipe Lines in California Soil—Gordon N. Scott, Pipe Line Technologist, Los Angeles.

Metals Used in the Polymerization of Oils—author to be announced.

General Application of Metals in Refining—R. L. Wilson, Climax Molybdenum Company, Canton.

Liquid Corrosion of Metals Used in Oil Industry—Dr. F. N. Speller, National Tube Company, Pittsburgh.

Metals for High Temperature Resistance in Refining Service—R. L. Wilson, Climax Molybdenum Company, Canton.

Valves for the Petroleum Industry—George Scherer, Merco Nordstrom Company, Oakland.

Typical Failures of Still Tubes in Refinery Service—E. C. Wright, National Tube Company, Pittsburgh.

Other Papers

Design and Fabrication of High Temperature, High Pressure Piping—F. C. Fantz, Midwest Piping & Supply Company, St. Louis.

Stainless Alloy Welded Plate and Castings Combined in Corrosion Resisting Pressure Equipment—Richard Jamesson, Electric Steel Foundry Company, Portland.

Welded Reinforcements and Attachments, Their Application and Placement on Pressure Vessels—K. V. King, Standard Oil Company, San Francisco.

Application of Hard Facing Materials—Don Llewellyn, Air Reductions Sales Company, New York.

Inspection of Welds and the Supervision of Welding Operators—Russel Graves, Welding Supervisor, Union Oil Company, Los Angeles.

Welding Program

The Pacific Coast Sections of the American Welding Society will have meetings in conjunction with the Western Metal Congress bringing the largest assembly of metal and welding experts ever held in the western states area. Speakers will be selected who are heads of projects and construction jobs and who can talk from a practical viewpoint.

A few of the subjects proposed for discussion are:

Symposium on Welded Oil Well Casing Strings

Weldability and Properties of Materials for Casing Strings—Isaac Harter, Babcock & Wilcox Company, New York.

Field Practice in Welding Casing Strings—Howard Newby, American Pipe & Steel Corporation, Los Angeles.

Physical and Economical Advantages of Welded Casing Strings—author to be announced.

Spring Meeting of American Society of Mechanical Engineers

The Spring Meeting (national) of A.S.M.E. will be held in the Biltmore Hotel, Los Angeles, the same week (March 21-25) as the Western Metal Congress. A strong program has been prepared covering the following subjects:

Applied Mechanics Session—

Petroleum Session: Pipe Lines, Progress in Deep Well Pumping, Deep Well Drilling, design of Oil Furnaces.

Hydraulic Session. Four Papers—

Miscellaneous Session: Mechanical Problems in the Design of the 200-inch Telescope, Engineering in the Motion Picture Industry, Mechanical Problems in Tractor Design, Orchard Heaters.

Machine Shops Practice Session. Two papers.

Aeronautics Session. Two papers.

Hydraulic Session. Four papers.

East Texas Chapter of A. P. I. meets February 15

The next meeting of the East Texas Chapter of the American Petroleum Institute, Division of Production, will be held in the high school auditorium at Kilgore, Texas on Tuesday evening, February 15, 1938.

The program to be presented will include a discussion of the subject "The Prevention and Treatment of Emulsions in the East Texas Field" by B. M. Givens, of Sun Oil Company. The second paper will be by F. G. Beckman on the subject "The Completion of Wells in the East Texas Field by the Reverse Circulation Method." Following these discussions the safety team of Empire Pipe Line Company at Gladewater will put on a short demonstration. A special program of entertainment is being prepared.

Preceding the meeting an informal dinner will be held at the Kilgore Hotel beginning at 6:30 p.m. The cost of this dinner will be $1.25 per plate.

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Edited by
WM. V. GROSS, Associate Editor

Test Gives Turner Valley 26,803 Barrels Daily Potential

FOLLOWING five-day tests conducted over a period of several weeks, Alberta government officials announced the combined potential production of Turner Valley's 35 crude producers to be 26,803 barrels, or an average of 766 barrels per well. The tests determine figures on which allowable production, now set at 42 percent of potenial, are set.

The revision in the allowable production figure was made effective January 15, but just how great an improvement over the 35-percent allowable that had been prevailing since November 15, could not be immediately determined. Production at 35 percent was set on potentials established several months ago after 3-day tests and in practically all cases were higher than potentials announced last week.

Big Well Makes 2313 Barrels

Commoil, Ltd.'s 1, Legal Subdivision 15, Section 29, Township 18, 2-w5, which was given acid treatment with sensational results a week ago, was officially revealed to be Canada's largest producer. Average daily production during the 5-day test was 2998 barrels. Davies Petroleums, Ltd.'s 2, record producer prior to treatment of the Commoil wells, was recorded at 2313 barrels, a drop of 22.9 percent from the 3000-barrel potential previously set following a 3-day test. Two other wells were revealed to be in the 2000-barrel class, Royalite Oil Company's Sterling-Pacific 6 with 2141 barrels and the same company's Sterling-Pacific 4 with 2052 barrels. Seven other wells had production ranging from 1000 to 2000 barrels daily.

Present production of the Turner Valley field is somewhat in excess of the 11,250 barrels indicated by the 42 percent figure. An additional 1500 barrels are being marketed on an independent basis, and the total is swelled still further by about 1800 barrels of naphtha.

West Flank Oil Company, Ltd.'s 2, on the line between Legal Subdivisions 1 and 8, Section 32, Township 18, 2-w5, was completed at 6973 feet, 431 feet in the Madison limestone. The start of a production test as the week closed indicated a flow of about 500 barrels daily. Nearby are the company's Nos. 1 and 3, both with potentials slightly in excess of 300 barrels.

Center of attention as possibly forecasting extensive development in the northern portion of the west flank was Brown Oil Corporation's 3, Legal Subdivision 1, Section 19, Township 19, 2-w5, which stopped drilling at 436 feet in the Madison, total depth 6576 feet. Tubing was being run and operators described chances of favorable production as being good.

Early Completions Due

Spy Hill Royalties, Ltd.'s 1, Legal Subdivision 16, Section 20, Township 18, 2-w5, encountered the Madison lime producing horizon, last week at 6570 feet. Anglo-Canadian Development & Holding Company, Ltd., drilling the test, were preparing to deepen a few feet and set casing, after which the test will be drilled to production. It is a quarter-mile north and west of the Davies' 2 large producer.

Two other tests were in the Madison and may complete during the month. Richland Oils, Ltd.'s 2, Legal Subdivision 5, Section 28, Township 18, 2-w5, was drilling at 6710 feet, 300 feet in the lime, with completion expected in another 175 feet. It is about mid-way, although slightly to the east, between Davies' 2 and the Commoil test. Operators report increased gas as the drill bites deeper, along with considerable oil in evidence. The company will resume operations at No. 1, on Legal Subdivision 12 of the same section, when equipment is released by No. 2.

The other test in the Madison was Royalite Oil Company's 29, Legal Subdivision 7, Section 27, Township 20, 3-w5, with casing cemented in the lime at 5674 feet and drilling at 5700 feet. This company spudded No. 30 on Legal Subdivision 11, Section 32, Township 18, 2-w5, three quarters of a mile southwest of its No. 28, which was drilling at 5885 feet as the week closed. The new test is farther west than any of the wells now drilling in the proven area, being a quarter-mile farther west than the large Commoil well, which is also three quarters of a mile to the south.

On the Taber structure, near the International boundary, Plains Petroleum Corporation, Ltd., is moving in equipment for Nos. 4 and 5. At No. 3, some of the tools lost recently when casing broke while casing was being removed were recovered, and operators believed the remainder would be recovered shortly. The test, now at 3106 feet, is to be carried deeper. Meanwhile, No. 2 is shut down pending disposal of crude in tanks at the well and No. 1, the discovery, was being abandoned because of water intrusion.

On the Highwood-Sinclair structure, to the south of Turner Valley, Green Valley Petroleums, Ltd.'s Banner 1, Legal Subdivision 6, Section 34, Township, 3-w5, was drilling at 5183 feet, half way through the Fernie shale, expecting to encounter the Madison limestone during the week. Six-inch casing is on the rack and will be set in the lime. The wildcat is logging similar to Turner Valley tests, except that formations are encountered at shallower depths.

To Drill on Blood Indian Reserve

Treaty Petroleum Company, Ltd., will start drilling operations this spring, or earlier if weather permits, on the company's 26,000-acre lease on the Blood Indian reserve, near Lethbridge, Alberta, announced Newton Wylie, Toronto, president of the company. The holdings, which were obtained a year ago, are on the Lethbridge anticline and on the Wild Turnip anticline. The first test will be spudded on the Lethbridge, on a location still to be selected.

Indicative of the intensive development to take place during the coming summer was announcement made that during the past week orders were placed for new machinery costing $500,000. While much of the new equipment purchased during the past few weeks will be used in Turner Valley, a large amount will also be used on wildcat structures in Alberta.

Increase Turner Valley Runs

An increased demand at West Canadian refineries was declared responsible for an increase in the allowable of Turner Valley wells from 35 to 42 percent, effective January 15. It is the the first upward revision of allowable since proration was instituted in the Valley September 12, 1937, when the take was set at 65 percent. A downward revision to 45 percent was made November 1, and the 35 percent figure was established November 15.

Notice of the increase was given by J. H. McLeod, production manager for Royalite Oil Company, Ltd., subsidiary of Imperial Oil Company, Ltd., and operator of the 50-mile pipe line connecting the field to Calgary, refinery and shipping center. "The government

test of crude oil wells in Turner Valley to ascertain the potential of each well has now been completed, with the result that we find there is at the present time connected to the pipe lines of this company a potential of 25,612 barrels a day," McLeod said. "Due to an increased demand at the refineries for a further supply of crude oil, it is possible at the present time to deliver 42 percent of the potential of the crude oil connected to the company's lines."

Potential tests conducted by Alberta officials showed an aggregate of 26,803 barrels. Several companies are marketing their crude independently of Imperial Oil Company, Ltd., and the British American Oil Company, Ltd., principal buyers whose crude is transported through the Royalite company's lines.

To Halt Turner Valley Gas Waste

N. E. Tanner, minister of lands and mines for Alberta, declared that a measure to halt waste of natural gas in Turner Valley will be introduced in the Provincial legislature, which convenes in Edmonton February 10, if a voluntary plan is not made effective before that date. Approximately 200,000,000 cubic feet of gas, largely from 75 naphtha wells is burned daily after being run through absorption plants. Naphtha production is about 2000 barrels daily.

Efforts were made during the past month to inaugurate a plan, originally suggested by the Petroleum Producers' Association, under which naphtha wells would be closed down and the owners compensated 100 percent, which would total about $1000 a day. The compensation would be paid by crude producers who would benefit by assurance that installation of artificial means of bringing crude to the surface would be delayed and by Calgary Gas Company which would be assured that Turner Valley would have a longer life.

Tanner said that every effort had been made to reach an amicable settlement with all interests concerned, but thus far major companies had not agreed to the plan. He expressed hope, however, that a voluntary plan would be inaugurated before the legislature convenes.

"Our decision to draft legislation to make the government's conservation plan effective should not be construed as a threat against those who have not yet fallen in line with the government's proposals," Tanner said. "It is true that some of the major oil companies have not yet given their consent to the plan, but we will endeavor right to the last to reach an amicable agreement with these companies before legislation is drafted. In any event, legislation will be necessary to ratify the proposals even if all interested agree to the plan."

Upward revision made in Trinidad crude production

Crude oil production in Trinidad during October, 1937, was 1,393,317 barrels, instead of 1,390,720 barrels as previously reported, according to a correction received from R. S. Mackilligan, inspector of mines and petroleum technologist for the mines department.

Mexico's government oil workers want increases

Trouble has arisen for the federal government's General Administration of National Petroleum as its workers are demanding that they share in the benefits the federal board of conciliation and arbitration granted employes of private oil companies in its verdict of December 18 which was rendered in connection with the general petroleum controversy. The administration's workers argue that as they perform exactly the same kind of work as employees of the private firms they are entitled to the same increased wages and other economic benefits the board's ruling orders.

Czechoslovak petroleum production on increase

Czechoslovak production of crude petroleum in November, 1937, totalled 1786 metric tons as compared with 1587 metric tons in October, 1937, and 1427 metric tons in November, 1936, representing increases of 12.5 percent and 25.2 percent, respectively.

Output of natural gas in November, 1937, amounted to 130,879 cubic meters, or a drop of 4.3 percent as against 136,714 cubic meters in October, 1937, but a gain of 16.9 percent as compared with 111,956 cubic meters in November of the preceding year.

Preliminary reconnaissance of Northern Iran completed

Frederick G. Clapp, on behalf of Amiranian Oil Company and Inland Exploration Company, has made a hasty reconnaissance this fall of vast regions in northern Iran and northern Afghanistan where those companies operate concessions. Clapp returned to Kabul in December from a trip to remote sections in which Henry C. Rea, Howard M. Kirk and others have been conducting studies with highly favorable results. Clapp was proceeding, late in December, to southeastern Iran for detailed work of Amiranian Oil Company and Iranian Pipe Line Company, its subsidiary which will pipe oil to the sea.

Cuban imports decline

Cuban imports of petroleum products in the third quarter of 1937 amounted to 211,978,327 kilograms, as against 222,198,690 kilograms in the corresponding period of last year and 165,170,972 kilograms in the second quarter of this year, according to Charles H. Ducote of Habana.

Legislative

[*Continued from page 18*]

already adopted resolutions disapproving export of petroleum products as contrary to any policy of true conservation and urging enactment of legislation which would not permit exports at any time to exceed imports and require the former to be made only under licenses issued by the government.

Investigation of domestic supplies of all strategic materials grew out of an inquiry undertaken by the committee into the scrap iron situation as a result of reports to Washington showing heavy foreign purchases which threatened, if continued, to affect the domestic supply.

Shares in anticipated production not income

Funds secured by the owner of an oil and gas lease through the sale of shares in anticipated production the money being used entirely for the drilling of a well, were held by the Board of Tax Appeals January 20 not to constitute income.

However, the board held in ruling on an appeal of Trans-California Oil Company, Ltd., from deficiency assessments of $4800 for 1930 and 1931, the company may not include any part of the proceeds from the sale of interests in its gross income for the purpose of computing its percentage depletion.

It was also held a lease owner is entitled to depletion deduction computed on the cost basis if it amounts to more than depletion computed on the percentage basis, but in computing its cost the taxpayer may not include that part of its intangible expenditures which was supplied by the certificate holders who financed the drilling.

Ruling on another point involved in the case, the board held that, the company operating on the accrual basis, amounts representing landowners royalties incurred and accrued on its books at the end of the tax year, but of which, through arrangement with the landowners, payment is deferred until after more pressing debts of the taxpayers are paid, are deductible from gross income for the year incurred.

Navy investigation of its oil reserves deferred

Not only was a $7500 increase requested by the Navy Department refused, but $2500 was lopped from the current appropriation for operation and conservation of the naval oil reserves in the department's supply bill for the fiscal year 1939, as reported to the House of Representatives January 17.

The department is given $59,500 for the year beginning July 1, next, as compared with $62,000 for the current year and $69,500 requested. The additional funds sought were to be used for maintenance and repair of government property, blueprinting and supplies, and the employment of men to investigate other possible petroleum deposits.

It was explained during hearings before the committee that a possible source of adding to the naval petroleum reserves was brought to the attention of Captain H. A. Stuart, director of the naval petroleum reserves, last year, and while the particular land involved is under naval jurisdiction, it is not at present included in any specified naval reserve and department officials believe it desirable that a thorough investigation be made.

Captain Stuart reported to the committee that sales of products from leased areas in Reserve No. 2 during the fiscal year 1937 brought the government a royalty of $434,333, while from Reserve No. 2 a total of $353,572 was received.

OKLAHOMA FIELDS

Erratic Cement pool has well flowing 3500 barrels initial.

* * *

Grady County test below 10,000 feet shows nothing.

* * *

Three offsets getting under way in new Ramsey pool.

Tulsa.—Completion of a flowing well of 3500 barrels capacity outside the shallow producing area of the Cement Pool, Caddo County, January 17, threw attention into another part of the Southern Oklahoma area. Ray Stevens Inc.'s Griffin 2, SE NE SE 27-6n-10w, made the record from a sand of upper Pennsylvania age between 4335 and 4365 feet. Three days later it flowed 1450 barrels through ¾-inch choke.

Dry holes and gas wells to the northwest plus the fact that the Cement field has an erratic record do not give encouragement of a large area of deep production. Cement is characterized by geologists as a field where each well is a wildcat; especially in lower sands it has no consistency.

One location northwest of the producing well is a gas well which drilled to 6879 feet without encountering oil at a level to compare with that of the Griffin well. There are also deep dry holes in Sections 35 and 36 to the southwest, where the nearest shallow production is.

Four offset locations have been made around the producing well.

Production in the Cement pool dates back to 1916. Since then production has been found at many levels, but sands have not been found consistent.

In Grady County, Gulf Oil Corporation was drilling below 10,010 feet at Thomas 1, SW NW NW 14-4n-5w, 5 miles northeast of the old Knox pool. Scheduled to go to 11,000 feet, the well has had only a few odors and small shows of oil since it started drilling. Four other wells in Oklahoma have gone to 10,000 feet or more. The most recent of these, Coline Oil Company's Johnson 1, SW SE NE 1-2n-8w, northwest of Marlow in Stephens County, was last reported as having drilled a new hole from 8674 to 8756 feet and was shut down for water. It originally went to 10,001 feet, but was plugged back to 9164 feet, above which depth considerable trouble with collapsed casing was experienced.

In Garfield County, Hollenback et al's Clark 1, NWc 34-21n-6w, southeast of Waukomis, was drilling below 7211 feet in hard, tight dolomite. Top of the first Wilcox sand was found at 7191 feet, with hardness of the formation increasing to the present drilling depth. Operators expect second Wilcox within the next 40 to 45 feet. An odor of gas was reported to 7203 feet.

Oklahoma City Sector

In Moore pool, Cleveland County, Sinclair Prairie Oil Company's Gross 1, SEc NE 22-10n-2w, was preparing for another test of Wilcox sand, topped at 7454 feet, and bottomed at 7456 feet. After setting 7-inch casing at 7451 feet, casing was perforated between 6685 and 6700 feet with 30 shots, following which it filled 1600 feet with salt water. Shot again between 6650 and 6685 feet with 79 shots, the salt water increased to 2400 feet. Operators plugged off the shot holes and were preparing further tests.

In the Langston pool of Logan County, Ohio Oil Company was cleaning out at Knight 1, SE NE SW 12-17n-1w, which was at 5080 feet. Shot with 46 quarts, the well flowed 247 barrels of oil the first 24 hours; 579 barrels the second, and 546 barrels the third 24-hour period.

In the Lamont pool of Grant County, Carter Oil Company et al's Booher 1, C WL NW SW 16-25n-3w, was still waiting on cement to set. The well had been plugged back to 5362 feet, then drilled out to 5394 feet, following which a leak was found in the pipe at 2820 feet. A squeeze job was performed at 2826 feet. Carter Oil Company et al's Barclay 1, C EL SE NE 17-25n-3w, was drilling below 5163 feet in Mississippi lime. Magnolia Petroleum Company's Reynolds 1, NWc SE 19-25n-3w, was drilling at 5930 feet in lime.

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Tulsa Sector

Operators continued preparations for the three offset tests in the new Ramsey pool of Payne County, all of which were completing cellar as the week ended. South offset to the new well, first carried as Jones-Wetzell 1, has been corrected and will be known as Columbia 1, NWc SW 18-18n-2e.

In the Jesse pool of Pontotoc County, Mid-Continent Petroleum Corporation experienced some trouble with Statler 11, NE SW SW 2-1n-7e, which blew out of control for one hour, making an estimated 25,000,000 to 30,000,000 cubic feet of gas from 4571 feet in second Bromide, topped at 4556 feet. Top of the first member was found at 4405 feet. Although the well was shut down for orders, operators indicated it would be completed as a gasser. Mid-Continent's Statler 12, C N½ N½ SW 2-1n-7e, was drilling below 2478 feet.

In Hughes County, Phillips Petro-

OKLAHOMA Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CADDO COUNTY—		
Ray Stephens, Funk 1, se sw se 1-5n-9w	150	5107
Magnolia, Sames 6, se se ne 35-6n-10w	¶34	5313
CARTER COUNTY—		
H. F. Potts, Johnson 1, sw sw se 10-1s-2w	*	803
Gulf Oil Corp., Jeff Smith 1, cen sw¼ 26-2s-3w	461	7773
CREEK COUNTY—		
Bruin Oil Co., Morton 1, ne nw se 27-14n-10e	45	3240
Pure Oil Co., J. Richards 7, nw nw ne se 4-17n-7e (otd 2592) (pb 2609)	4	2720
Schoolcraft & Ferguson, Falkerson 5, se sw se nw 5-17n-7e (pb 2235)	10	2760
Shannon et al, Colyer 1-A, se nw se 33-17n-7e	*	560
L & L Dev. Co., Geo. Baker 2, ne ne nw ne 14-17n-10e	15	1959
J. E. Crosbie Inc., Escoe 7, cn½ ne nw sw 26-18n-8e (otd 1326)	50	2619
L. B. Jackson, Y. Bear 9, ne se se 35-18n-8e	5	2667
A. W. Swift & Co., Hayden 3, nw nw se sw 12-19n-9e	25	1216
HUGHES COUNTY—		
McGee, Taylor 5, sw nw nw 12-9n-10e	*	558
Pure Oil, G. Rogers 1, se se nw 18-8n-12e	*	5054
JEFFERSON COUNTY—		
Bridwell-Continental, W. D. Seay "A" 15, nw nw ne 10-7s-5w	15	1101
KAY COUNTY—		
Neil Sullivan, Trustee, Christenson 1-A, nw nw nw se 2-27n-3e	*	1506
LINCOLN COUNTY—		
Portland Oil Co., Thomas 1, csw sw 10-13n-6e	¶22	4088
Sinclair Prairie, Buckles 1 "B", nw nw nw se 15-14n-6e	18	3009
Buckles 2 "B", ne nw se 15-14n-6e	50	2990
Stanolind & Amerada, Arinwine 4, sw ne se 35-15n-2e	677	5130
MUSKOGEE COUNTY—		
Armstrong et al, Morrison 21, se sw nw sw 15-14n-16e	15	1490
E. J. Metzger, B. Simmons 1, se nw se 4-15n-15e	*	1698
Lambert, Fisher 1-A, se nw se sw 31-16n-15e	*	2088
NOBLE COUNTY—		
Lincoln Oil et al, O'Neil 4, ne nw se 16-23n-2w	*	4335
Phillips & Shell, McCaughtry 14, se se ne 21-23n-2w	3290	4347
OKLAHOMA COUNTY—		
I.T.I.O., A. Bodine 8, ne ne ne se 24-11n-3w	324	2976
Champlin Ref. Co., McFall 1, ne nw se ne 35-12n-3w	1195	6400

leum Company's Becker 1, NE NW SW 8-5n-10e, cored from 5851 to 5853 feet and recovered 14 inches of sandy dolomite with a stain of oil and a salty taste. Earlier in the week, it had mud on a drill-stem test at 5847 feet.

Tulsa.—Completions in Oklahoma last week ran to a total of 50 while stakes were driven for 51 locations. The completions included 29 oil wells with initial production of 10,139 barrels, 5 gas wells, and 17 dry holes. Seminole County led in locations with 14. The remainder were in the following counties: Carter 5; Okfuskee and Pontotoc 4 each; Stevens 3; Caddo, Hughes, Noble, Pottawatomie and Tulsa 2 each; Garfield, Greer, Jefferson, Logan, Osage, Payne 1 each.

Mobile, Ala.—Definite assurance has been secured that Joe Modisett and associates' McCorvey 1, SE SW SW 20-9n-2w, Choctaw County, Alabama, on the Hatchetigbee anticline, will be deepened from 7520 feet, the depth record for Alabama. It may be taken to 9000 feet. A number of companies owning spreads in Modisett's block of 30,000 acres are aiding in the deepening.

WALTER L. McCLANAHAN, president of McClanahan Oil Company, and several other concerns bearing his name, was in Tulsa last week. He stated at the time he intended opening an office there.

Company, Well and Location	Init. Prod. Bbls.	Depth
OKMULGEE COUNTY—		
E. H. Moore, Fee 1, se se sw 11-14n-13e (pb 1865)	*	2512
M. P. Springer, Hawkins 1-A, sw sw nw ne 15-15n-13e	*	2440
OSAGE COUNTY—		
Oklahoma Nat. Gas Co., 1940, se ne ne se 18-20n-12e (pb 1090)	*	1540
I.T.I.O. 452, sw se ne nw 24-26n-10e	¶175	1886
PAYNE COUNTY—		
Mid-Continent et al, Ramsey 1, sw sw ne 18-18n-2e	780	4795
Ohio Oil Co., S. F. Harris 1, nw sw nw 10-18n-5e	¶2537	2173
PONTOTOC COUNTY—		
Mid-Continent, Statler 10, nw se sw 2-1n-7e	1289	4520
Deep Rock, Garrett 2, se ne se 3-1n-7e	740	4060
Harper Turner, Fee 2, nw se nw 19-2n-4e	*	384
Crosbie, Hardin 4-C, se sw ne 30-2n-7e	10	3577
Continental, C. V. Thompson 1, sw nw sw 35-2n-7e (pb 4000)	*	4362
Lake Oil, A. Summers 1, sw nw nw 25-5n-4e	90	2573
POTTAWATOMIE COUNTY—		
Denver P&R, Gassaway 1-A, sw sw sw 12-7n-4e	*	3360
Denver P&R, Hilton 1, se sw nw 23-7n-4e	*	3270
Sinclair Prairie, Wolf 4, sw nw nw 29-7n-5e (pb 4141)	123	4166
SEMINOLE COUNTY—		
Mid-Continent, Fleet 17, ne sw se 7-5n-8e	40	4140
J. F. Smith, Austin 1, nw ne se 32-7n-6e	225	2945
I. Wilson, Wright 1, ne sw se 32-7n-6e	*	2932
Malernee, Shelton 1, se nw sw 33-7n-6e	100	2916
Rodgers, Reed 1, nw sw ne 16-9n-7e (pb 3450)	*	4212
Atlantic, S. Riddle 2, nw sw ne 2-10n-5e	291	4640
STEPHENS COUNTY—		
Clark & Cowden, Simpson 10, se ne ne 11-1n-5w (pb 4140)	¶5970	6338
Geo. L. Pace, Allen 16, se se sw ne 3-2s-8w	100	2194
Armour & Tomlinson, Nigh "A" 3, se ne ne sw 11-2s-8w (pb 2050)	2	2085
TULSA COUNTY—		
Mid-Continent, Brown 2, ne se sw ne 9-19n-12e (otd 1623)	*	2080

*Failures; †Junked; ¶Million cu. ft. gas.

KANSAS FIELDS

McPherson County community wildcat tests production.

* * *

Ellsworth and Stafford Counties have possible new fields.

* * *

New Zenith pool extension try has small show of oil.

Wichita.—A new pool in McPherson County and possible openers in Barton, Ellsworth and Stafford counties, were highlights of drilling development for Kansas last week. Also in Stafford County operators were watching for extension of the new Zenith pool.

North of Lindsborg, McPherson County, Carter Oil Company continued preparations for completing Hoglund 1, C WL SW NW 8-17s-3w, which began producing from 3373 feet, plugged back from 3448 feet. In three days of pumping tests the well made 174 barrels of oil and 84 barrels of water in 17½ hours; 88 barrels of oil and 16 barrels of water in 8 hours and 88 barrels of oil and about the same amount of water in 16 hours. The well is on a community block comprised of from 3500 to 4000 acres. Nearest production is in the old McPherson pool, 13 miles southeast.

J. A. Brouk and Thayer Drilling Company et al's Soderstrom 1, SEc NW 21-17s-13w, was being acidized after shows in the Kansas City-Lansing lime indicated it may open a new pool for Barton County, three miles north of Hoisington. First shows were at 3230 feet, top of the lime, and it was deepened to 3233 feet after recovering 3 barrels of oil per hour on a 12-hour test. It was later deepened to 3267 feet in the lime. No water was showing. Nearest production is in the South Ainsworth pool, opened late last year by Brouk and National Refining Company.

Ellsworth County

Cities Service Oil Company, Skelly Oil Company et al's Schroeder-Community 1, C NL NW 29-17s-9w, three miles west of the South Lorraine pool of Ellsworth County, may open a new pool shortly as a saturated core was found in Siliceous lime between 3202 and 3204 feet. Top of the formation was at 3201 feet. Standard tools were being rigged for drilling in, with 7-inch casing set at 3202 feet. Those holding acreage in the block include Cities Service Oil Company as operator; Skelly Oil Company ¼ interest; Carter Oil Company ¼ and Continental Oil Company and Texon Oil & Land Company ⅛ each.

Two miles south of production in the new Sittner pool of Stafford County, Cardinal Oil Company et al's Sittner 1, SWc 4-22s-12w, looked to be a pool opener, recovering a saturated core between 3686 and 3696 feet in Siliceous lime. Operators were running 7-inch casing and the test will be drilled in with cable tools. The Sittner pool, a 1937 discovery, is producing from Kansis City lime at 3410 feet. Discovery well is Torry & Feaster's Sittner 1, NEc 33-21s-12w.

Possible extension of the recently discovered Zenith pool of Stafford County was being watched for at Stanolind Oil & Gas Company's McComb 1, NEc NW 26-24s-11w, ½-mile south of the pool. On a 4-hour swabbing test the well made 33 barrels of oil and about 1 gallon of water, production coming from Misener sand at 3810 feet, plug-back depth. It will be plugged back another six inches and another swabbing test made.

Five miles north of the Zenith pool, Torry & Feaster's Heggy 1, NEc SW 26-23s-11w, had a good showing of oil in a core from 3693 to 3697 feet. After drilling to 3704 feet, operators were rigging up standard tools before drilling into the formation, said to be Viola lime.

Sedgwick County

A Sedgwick County area, 6 miles west of Clonmel, was being closely watched as Reeves, Kinnan et al's Hein 1, SWc 5-29s-3w, was reported checking high, giving it possibilities as a pool opener. Top of the Simpson was at 4104 feet, based at 4148 feet. It was thought, however, the well would be completed in the Siliceous lime, expected within the next 50 to 60 feet. While dolomite lime was found in a core from the Simpson with only a smell of oil.

Another try for production in the Pawnee Rock pool of Pawnee County is being started by Kessler Oil & Gas Company and British American Oil Producing Company's Belt 1, SEc NW 13-20s-16w. The new test is a direct north offset to the discovery producer of the field. Simpson & Noble's Gates 1, SWc 12-20s-16w, which is producing from 3841 feet in Siliceous lime. The pool opened the first commercial production for Pawnee County. The new test was a rig.

Cunningham Active

The Cunningham pool of Kingman County saw activity once again, for the first time in several months, with Skelly

Oil Company rigging up tools for Conley 2, C W½ NE SW 20-27s-10w. The test was ready to spud and is reported as the first test for the field in almost a year. An increase in operations for the general area southwest from Cunningham to the Gilchrist gas pool is being watched for, with general opinion being that a good deal of the territory between the two sectors may be found productive.

Trouble with a caving hole was slowing operations at National Refining Company's Pray 1, SW NW SW 31-27s-3e, east offset to the discovery producer in the Andover South pool of Sedgwick County. The test drilled into chat at 2812 feet and at 2820 feet the hole started caving. Operators were underreaming 7-inch down from 2505 feet to the total depth before drilling ahead in search for Wilcox sand, producing horizon of the discovery well. The pool opener, in Section 36-27s-4e, found Wilcox sand from 3087 to 3099 feet.

An effort to find production north of the Kraft pool of Barton County ended in failure last week as C. E. Ash et al's Frees 1, NWc 34-16s-11w, two miles north of the pool, was abandoned at 3444 feet in Siliceous lime. At 3418 feet the well had 100 feet of oil in the hole, but sulphur water was encountered at 3433 feet and increased at the total depth.

Indicating southeast limits of production for the Walters pool of Ellis County, P. G. Reynolds et al's Karlin 1, NWc 13-12s-18w, a mile southeast of the pool, found Siliceous lime at 3674 to 3682 feet and reported little porosity, and was preparing to acidize.

Midway between the Bloomer and Stumps pools of Barton and Rice counties, Frank Hollow et al's Stout 1, NE SE NE 6-18s-10w, was reported shut down to connect up after finding 4,000,000 to 7,000,000 cubic feet of gas in Kansas City lime at 2995 feet. Top of the formation was found at 2965 feet.

Two miles northwest of Arkansas City in Cowley County, George P. Dickey et al's Community 1, NEc 22-34s-3e, was to be carried to Siliceous lime for completion after failing to find commercial production in Bartlesville sand at 3313 feet. It filled 75 feet with oil from the sand following a 10-quart shot.

KANSAS
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
BARBER COUNTY—		
Barbara, J. H. McKee 1, se se se 21-33s-13w	¶21	4635
BARTON COUNTY—		
Cities Service, Bitter "D" 1, sw sw ne 8-16s-13w	*	3450
Bitter "C" 1, nw nw ne 18-16s-13w	518	3389
Stanolind, Wm. Panning 8, se ne se 2-20s-11w	1890	3283
Kowasky 8, se se ne 11-20s-11w	2043	3285
Gulf, J. Spainier 1, nw nw nw 12-20s-11w	1830	3278
Gulf, Sessler 6, sw nw sw 24-20s-11w	1617	3261
I.T.I.O., Sessler 5, nw sw sw 24-20s-11w	1722	3271
Texas, H. Disque 2, ne se sw 3-17s-11w	1865	3339
CHAUTAUQUA COUNTY—		
Skiles et al, Miller 1, se se se 1-33s-11e	¶25	910
Seifkin & Republic Nat'l Gas, Burton 2, ne sw sw se 27-33s-12e (pb 1080)	*	1765
COWLEY COUNTY—		
Phillips, Starkey 1, nw ne se 16-30s 4e	165	2791
ELLIS COUNTY—		
Lario, Romie 5, sw nw sw 18-11s-16w	2677	3391
Phillips, Bemis 4, sw se ne 21-11s-17w	3097	3360
Magnolia, Johansen 8, ne se se 22-11s-17w	2565	3378
Kerlyn Oil Co., J. A. Rumsey 1, sw sw sw 23-11s-17w	2721	3395
Champlin Ref., C. M. Hadley 1, center sw¼ 29-11s-17w	6356	3555
Meier "A", sw ne sw 36-11s-18w (pb 3590)	*	3697
ELK COUNTY—		
Murphy Oil, Denton 7, sw nw sw 3-31s-8e (pb 2700)	13	3134
GRANT COUNTY—		
R. K. Wilson, Sledd Farm Corp. 1, se se¼ 11-28s-38w	¶8	2649
United Prod., Cummings 1, center sw¼ 25-29s-35w	¶333	2717
HARVEY COUNTY—		
Allison et al, Hawks 1, sw se ne 16-24s-1w	*	3675
MARION COUNTY—		
Harwood Oil et al, Novak 1, ne ne sw 28-17s-4e	35	2484
McPHERSON COUNTY—		
Pryor & Lockhart, Bixby 1, ne ne sw 24-19s-3w (pb 3008)	579	3017
Continental, D. B. Jones "A" 1, se se se 30-21s-1w	120	3295
NESS COUNTY—		
Continental, B. Olson 1, sw nw nw 5-18s-25w	653	4325
RENO COUNTY—		
Westgate et al, Popp 1, sw sw ne 7-25s-4w	*	4136
RICE COUNTY—		
Shell, Zajic 1, nw nw ne 13-18s-8w	2331	3242
Skelly, Volkland 1, nw sw nw 5-18s-10w	4005	3006
RUSH COUNTY—		
Moss Pet., Rodie 1, ne ne nw 27-18s-16w	*	3599
RUSSELL COUNTY—		
Texon, Letsch 4, sw nw sw 26-14s-13w (pb 2875)	1897	2930
J. J. Hall, L. Miller 5, se nw nw 31-14s-13w	1409	3144
Jones Shelbourne, Short 1, ne ne ne 12-15s-12w	*	3338
Cities Service, Krug "F" 1, nw nw ne 13-15s-14w	1912	3118
Podszus 1, ne ne sw 25-15s-14w	1830	3310
STAFFORD COUNTY—		
Stanolind et al, Wm. Volker 1, sw nw ne 23-24s-11w	1709	3802
SUMNER COUNTY—		
Stelbar, Barlow "B" 3, cw½ w½ se 33-31s-1w	3074	3681

*Failures; †Junked; ¶Million cu. ft. gas.

California offshore oil movement shows increase

Los Angeles. — Importance of offshore shipments of California oil in relation to total crude oil production is pointed out in studies made by the Oil Producers Agency of California, and reported by the Technical Committee of the state-wide group of independent oil operators. These studies cover the 10-year period from 1928 to 1937 inclusive, and show that during that time offshore shipments of the various refined products of crude, as well as crude itself, have absorbed an average of 30.74 percent of total production.

The importance of these shipments to the whole statistical picture of the California oil industry can be realized when it is noted that approximately 65,000,000 barrels of California oil would have gone into storage in 1937 alone had the foreign and Atlantic seaboard markets been taken away from California producers.

In 1937, these markets took 69,097,067 barrels of oil, with a net reduction of approximately 5,000,000 barrels in stocks of all oils in California. The effect on the stability of the market of the addition of 65,000,000 barrels of oil to storage can easily be deduced when it is realized that 1929, which saw the addition of approximately 45,000,000 barrels to storage, marked the beginning of chaotic marketing conditions which for a time threatened the California oil industry with destruction.

During the year just closed, as compared with 1936, shipments of all products increased 14,389,994 barrels, from 54,507,073 barrels in 1936 to 69,097,067 barrels in 1937, the greatest portion of the increase being in crude and fuel oil shipments. The former increased 7,274,065 barrels during the year, totaling 20,576,387 barrels in 1937 against 13,302,322 barrels in 1936. The latter increased 5,822,567 barrels during 1937 to a total of 24,943,053 barrels compared with 19,120,486 barrels in 1936.

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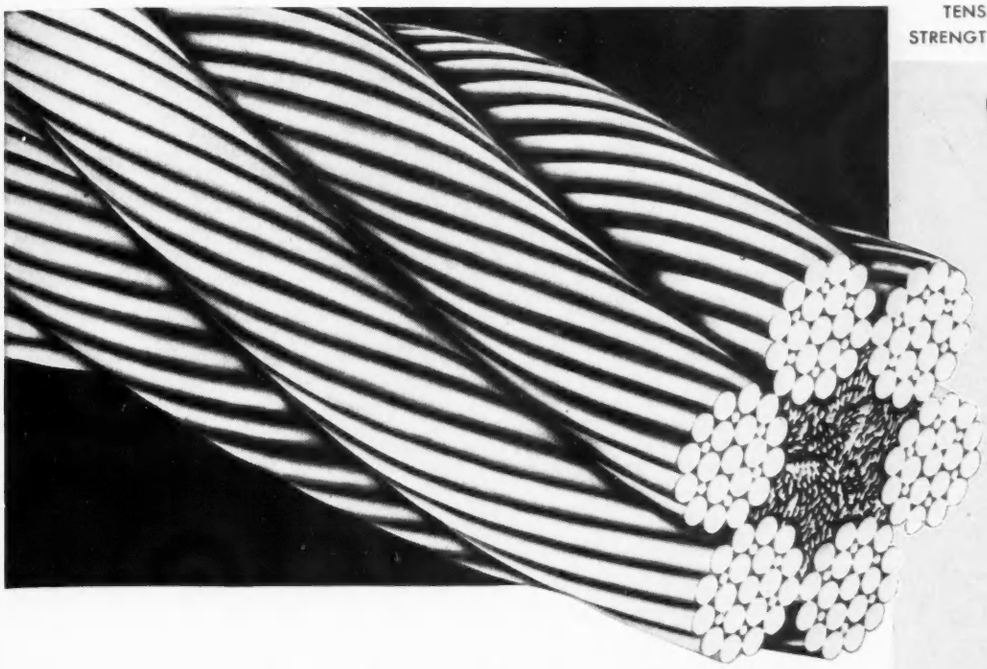

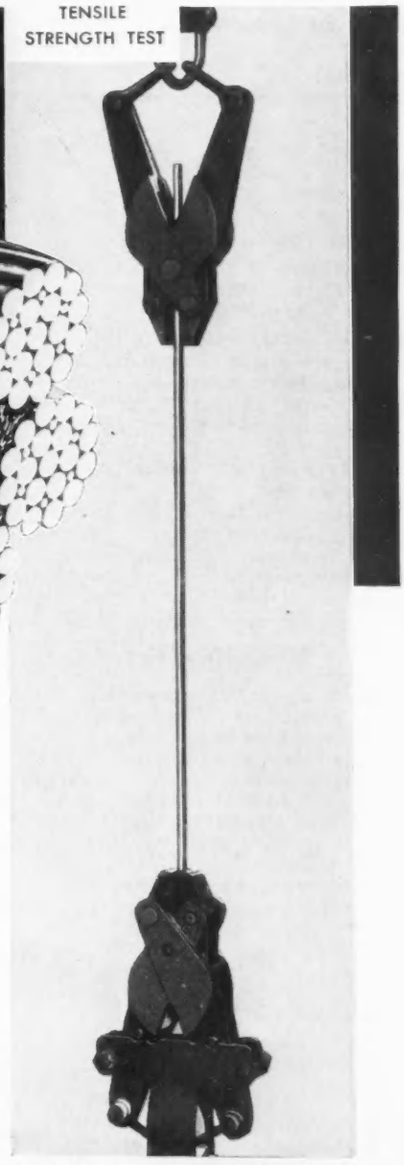

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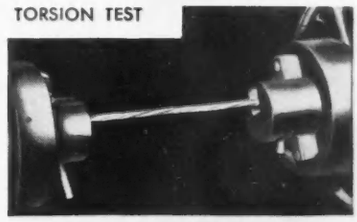

BEND TEST

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UNITED STATES STEEL

Oil in Courts

[*Continued from page 15*]

auction sale was recently ordered by a Travis County district court.

Periodical confiscation of oil products derived from illegal production is the only penalty imposed by state authorities in recent years for excessive oil withdrawals from wells in the East Texas field.

East Texas refiners usually are the only bidders at the auction sales, and frequently repossess the original stocks confiscated by the state. Volume of confiscated oil has been adequate over a long period for plants to continue steady operations in supplying intrastate gasoline markets.

Refined products produced from confiscated oil automatically receive tenders from the state tender board, but are barred from interstate markets by the federal board.

Fight Wyoming Investigation

Five companies engaged in production activity in Wyoming have joined in a brief filed with the supreme court in that state attacking employment of a private investigator to determine whether or not the state is getting its full share of oil royalties. It is contended that a contract between the state land board and W. Jack Cole is unconstitutional.

Companies joining in the brief are Continental Oil Company, Merritt Oil Company, Midwest Oil Company, Mountain Fuel Supply Company and Ohio Oil Company.

Oppose Bachelor Tax

Something new in the way of injunctions has been obtained by Mexican Eagle Oil Company and San Cristobal Tanker Company. They obtained a writ from a Tampico court against enactment on the wages of their employes of the new Tamaulipas state law that provides an impost of from 5 to 20 percent on the income of all unmarried men—bachelors, widowers or divorcees. The law demands that employers deduct these percentages from wages and pay them to the state.

Illinois Plugging Law

Although existing Illinois statutes do not directly apply to oil wells drilled with rotary equipment, such wells must be effectively plugged when abandoned, Attorney General Otto Kerner last week advised William F. Sonneman, state's attorney at Vandalia, Fayette County.

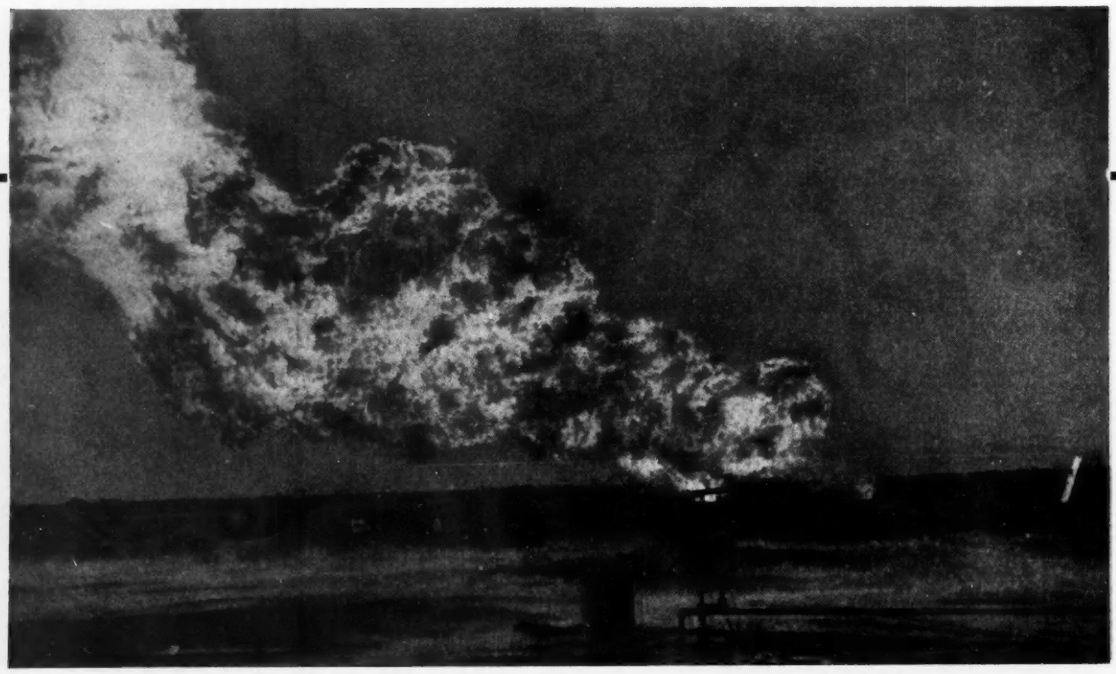
Kerner pointed out that, under present statutes, before casing shall be drawn, the party in charge of the well and the owner of the land must plug the well by solidly filling it from the bottom to a point 25 feet above the oil bearing rock, on top of which filling shall be seated a dry wood plug and above the wood plug the well shall be filled to a distance of 25 feet where another dry wood plug shall be seated and the well then filled to its top.

"My information is that at the time the statute in regard to plugging oil wells was passed, rotary drills were not in use and the statute was framed with the thought that wells to be plugged would be drilled by churn drills," Kerner said. "While it may not be possible to plug an abandoned oil well which has been drilled with a rotary drill in the precise manner provided by statute, still it occurs to me that such wells must be so plugged that the effect thereon will be the same as the effect produced by the plugging of a well which has been drilled with a churn drill."

North Pecos Showing

San Angelo.—Production test in progress late last week yielded oil and gas showings in Magnolia Petroleum Company and Tex-Mex Petroleum Company's McKee 1-A, Northern Pecos County Ordovician prospect after swabbing mud down to within 1300 feet of bottom. Observers predicted that the wildcat would make a small producer when cleaned out. It is testing lower section of the Simpson, or Middle Ordovician, topped at 4775 feet, with best saturation from 5274 feet to the present depth of 5294 feet. An intensive lease and royalty play began early in November when this wildcat located in H&GN

Another VICTORY



For M. M. KINLEY COMPANY
HOUSTON, TEXAS

Section 24, Block 9, entered the Simpson at an unusually high structural position for the area. It has an elevation of 2385 feet.

Saturated lime section logged by Stanley Thompson et al's Elsinore 1, southwestern Pecos County wildcat in drilling to 7128 feet has induced the owners to run pipe for a production test. Small amount of gas appears with rotary returns. It is scheduled to drill to the Ordovician, and the above show is credited to the Lower Pennsylvanian.

Barnett Petroleum Corporation's Johnson 1-A, northwestern Loving County wildcat listed last week as flowing by heads from lower section of Delaware at 3844-46 feet, developed salt water after averaging 3 barrels of 40-gravity oil per hour for 22 hours. An effort is being made to determine the source of the water.

Louisiana cuts output

Louisiana's allowable for February was set at 244,700 barrels, a reduction of 11,300 barrels from January's allowable, Conservation Commissioner William G. Rankin announced Friday. South Louisiana was cut 800 barrels to 172,700 barrels. North Louisiana was cut 10,500 barrels to 72,000 barrels, the bulk of the reduction being in Rodessa, which was cut 8000 barrels to 42,000 barrels which is about the actual daily production of the field at present. Lisbon's allowable was left unchanged.

Mexico anticipates record returns from gasoline tax

The record return of 40,000,000 pesos (some $11,100,000) from the gasoline consumption tax in Mexico is seen for this year by the finance ministry. The yield in 1936 was 32,000,000 pesos. Better roads and consequent increased motor vehicle traffic, as well as industrial and agricultural expansion, are the prime factors in the higher revenue from the source this year. The federal and state governments are investing 24,000,000 of this year's proceeds from the gas impost in highway works.

Wichita.—Kansas had 38 wells completed last week, and work started on 40 tests. The completed wells included 27 producers with initial output of 48,633 barrels, 4 gas wells, and 7 dry holes. By counties the new wells were divided as follows: Russell 10; Barton 5; Rice 7; McPherson 4; Ellis 3; Cowley, Greenwood and Woodson 2 each; Barber, Ellsworth, Kingman, Sedgwick and Stafford 1 each.

R. M. PITCHER, secretary and assistant treasurer for British American Oil Producing Company and Toronto Pipe Line Company at Tulsa, resigned last week. Pitcher joined the firm in 1927 at Wichita Falls, Texas, and came to Tulsa when the general offices were moved in 1929. He did not make known his plans for the future other than that he will remain in Tulsa.

EASTERN FIELDS

West Virginia drilling had large gain in 1937

Charleston, W. Va.—West Virginia oil and gas drilling activity, as reflected by the number of permits issued, gained 24.3 percent during 1937 over the previous year, according to the monthly report of N. P. Rhinehart, chief of the state department of mines, released here last week. Permits for the year just closed totaled 1034, compared to 832 for 1936.

Kanawha County, now with three Oriskany deep sand gas pools, led in 1937 with 200. It's margin was large over the second and third ranking counties—Ritchie with 114 and Gilmer with 102.

Following is the 1937 permit figure for other counties: Barbour 3, Boone 48, Braxton 44, Brooke 2, Cabell 45, Calhoun 67, Clay 15, Doddridge 15, Fayette 1, Hampshire 1, Hancock 7, Harrison 6, Jackson 14, Lewis 12, Lincoln 50, Logan 1, Marion 15, Marshall 18, Mason 2, Mingo 4, Monongalia 18, Nicholas 5, Pleasants 24, Putnam 10, Roane 48, Taylor 1, Tyler 26, Upshur 9, Wayne 30, Wetzel 32, Wirt 30, and Wood 15.

December permits dropped 16, or 22.5 percent, from the 71 issued during the corresponding month a year ago. Following is the breakdown by counties for the past month: Barbour 2, Brooke 1, Cabell 4, Calhoun 3, Clay 2, Doddridge 1, Gilmer 10, Hancock 3, Harrison 1, Kanawha 8, Lincoln 1, Marshall 1, Pleasants 2, Ritchie 10, Roane 1, Tyler 1, Wayne 2, and Wetzel 2.

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
OHIO		
ATHENS COUNTY—		
B. Johnston, Snow 3	¶.19	950
Ohio F. G. Co., Chase 2	*	1292
GUERNSEY COUNTY—		
Kernodie et al, Orahaske 1	*	1120
KNOX COUNTY—		
Ohio F. G. Co., Wolfe 1	¶7.00	2990
LICKING COUNTY—		
Kundtz-Hulse, Billman Hrs. 1	20	3055
Rutledge & Mossholder, Nethers 1	¶.10	810
Willey et al, Caldwell & Currie 2	*	2950
MEDINA COUNTY—		
E. R. Edson & Son, Bricker 35	4	390
John Marsh, Stratton 15	*	525
MONROE COUNTY—		
L. E. Smith, Smith 9	*	1240
MORGAN COUNTY—		
C. P. Bowman, Woodyard 2	¶.09	1553
MUSKINGUM COUNTY—		
Hope Cons. & Ref. Co., Morgan 3	40	3210
C. T. Eagon, Baughman 1	*	864
NOBLE COUNTY—		
Barnesville Dev. Co., Gibson 1	¶.03	1660
PERRY COUNTY—		
Preston Oil Co., Randolph 1	5	3230
Thistle Oil Co., Joyce 1	¶.30	1060
SENECA COUNTY—		
Goodrich et al, Edwards 4	30	1530
STARK COUNTY—		
East Ohio Gas Co., Richards 2	¶1.01	4600
Louden & Dewalt, Weiroengh 2	¶	800
WASHINGTON COUNTY—		
Hume et al, Eddy 2	25	1115
Metcalf et al, Hendershot 2	2	1220
Schneider Oil Co., Haynes 12	*	1100
WEST VIRGINIA		
CALHOUN COUNTY—		
Ayers et al, Chenowith 1	¶.15	1774
GILMER COUNTY—		
P. K. Weekley, Beall 1	¶.36	1705
Pittsburgh & W. Va. Gas Co., Bonnett Hrs. 1	¶.13	1706
Roberts et al, Rhodes 1	*	2610
JACKSON COUNTY—		
Sable Oil Co., Castro 1	*	1520
KANAWHA COUNTY—		
United F. G Co., Dawson 4766	¶18.00	4975
Glass 4739	¶8.62	4750
Columbian Carbon Co., Patrick & Carte 1	¶1.22	5090
MARION COUNTY—		
Victor Oil Co., Z. J. Kuhn 1	¶	3085
MONONGALIA COUNTY—		
Consolidated O&G Co., Shanks 1	1	1840
PLEASANTS COUNTY—		
Ward Deems and Co., Cassidy 1	*	1235
RITCHIE COUNTY—		
Mud Lick O&G Co., Brissey 1	¶.20	1745
ROANE COUNTY—		
Bland, Ferrell et al, Moore Hrs. 1	*	1750
TYLER COUNTY—		
F. R. Morrison, Lowther 1	*	2026
WETZEL COUNTY—		
Morgan et al, McCormack 1	*	1960
WIRT COUNTY—		
Oil City Trust Co., Deever 3	10	2435
S. W. Douglass, Kidwell	5	2550
KENTUCKY		
DAVIESS COUNTY—		
Rex-Pyramid Oil Co., Cooper	¶1.11	620
HANCOCK COUNTY—		
Ray Cooper, Boling	5	....
Galey & Fletcher, West 1	*	550
HENDERSON COUNTY—		
Mecca Oil Co., Gish 23	50	725
KNOTT COUNTY—		
Inland Gas Corp., Waddell & Whitaker 195	¶	3570
McLEAN COUNTY—		
Hume et al, Ward 1	*	2215
OHIO COUNTY—		
Cane Run Pet. Co., Rhodes 19	20	....
Lang & Lewis, Cameron	10	930
Mecca Oil Co., McDaniel	*	....
POWELL COUNTY—		
Coleman Hall, Rogers 4	*	....
UNION COUNTY—		
Clark et al, Young 1	*	1210
PENNSYLVANIA		
ALLEGHENY COUNTY—		
Beedle & DeBone, McMahon 2	¶.36	....
McNanny et al, Glause 1	*	....
Swain et al, Bole 1	*	....
GREENE COUNTY—		
B. Wright, Rush 1	¶.66	3045
Equitable Gas Co., Brock 4	*	3425
WASHINGTON COUNTY—		
Duquesne Gas Co., Hughes 1	¶.10	2862
NEW YORK		
STEUBEN COUNTY—		
New York State Natural Gas Co., Finch 1	¶19.00	4035
A. Schaul 1	¶2.20	5027

*Failures; †Junked; ¶Million cu. ft. gas.

ILLINOIS DEVELOPMENTS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CLAY COUNTY—		
Danville Oil Drillers (Vermilion Oil Co.), Duff 1	125	3047
Wiser Oil Co., Smith 11	11	3013
CLINTON COUNTY—		
Shell, Criley 1	121	1378
Santa Fe O&G Co., Vandeloo 4	46	1017
DeKALB COUNTY—		
Barton et al, MacQueen 1	*	2970
Schulte et al, Wyman 1	*	4348
FAYETTE COUNTY—		
Carter, Clow 1	200	1503
Mary Miller 1	80	3100
Benedum-Trees, Vanzant (Moore) 1	*	3155
GREENE COUNTY—		
Witt, Godey & Robey, Gogsall 1	*	800
JEFFERSON COUNTY—		
Carter, Tate 1	70	3874
Dee & Jordan (Sigel & Schlosberg) Schneider 1	*	1960
MARION COUNTY—		
K. D. Holland, McIntire 1	32	1447
RICHLAND COUNTY—		
Pure, Coen 2	430	2960
Coen 3	936	2962
Moore 1	*	3097
Carter, Watkins 5	300	3005
Pray et al, Bahr 1	130	2976
ROCK ISLAND COUNTY—		
Rockdale O&G Co., Clifton 1	*	1353
WAYNE COUNTY—		
Pure, Gill 2	408	3088

*Failures; †Junked; ¶Million cu. ft. gas.

NORTH TEXAS FIELDS

K-M-A production extended nearly two miles northwest.

* * *

Outposts and wildcats increase Wichita drilling volume.

* * *

K-M-A operators seek reduction of drilling costs.

Wichita Falls, Texas.—Barren area within the productive limits of the west portion of the K-M-A field was enlarged the past week when R. G. Drilling Company and J. T. Harrell's Munger 1, SEc Lot 9, Block 24, failed to make a producer in drilling to 3890 feet, or 2897 feet sub-sea.

This adverse development is due to the absence of normal deposits of sand and lime in the Strawn section, as shale predominated. Munger 1 logged top of lime at 3675 feet, with an elevation of 993 feet, indicating a normal structural position for this sector. Similar condition was experienced by Wayne H. Hammon et al's J. H. Bradley 3, S. Holloway Survey, A-497, situated ¾-mile west and across the river from the above project. Bradley 3 logged top of lime at 3694 feet, with an elevation of 1013 feet, and was abandoned in August, 1931, at 4002 feet. This early failure contributed toward the delay experienced by the deep zone in attaining prominence as a major source of high-gravity oil. LeBus et al's J. F. Miller 1, located on the north bank of the river and ⅓-mile east of Munger 1, was completed last November rated at 350 barrels initial after light shot in broken Strawn at 3715-3860 feet, with top of lime called at 3659 feet, or 2664 feet sub-sea.

Production test on important wildcat prospects situated 3½ miles west by south and 1¾ miles northwest of flowing wells was due late last week. Geier Brothers, Inc., and F. B. Jackson, Jr.'s Ancell 1 is seeking to extend production to the southwest corner of Wichita County, and has started drilling plugs from 7-inch pipe with the hole bottomed at 3990 feet. Broken formation, carrying oil saturation, was logged at 3955-90 feet. This outpost encountered top of lime at 3837 feet, with an elevation of 1051 feet, and is 160 feet lower structurally than the same marker on Consolidated Oil Company et al's Ferguson 2, nearest producer. Lease title matters caused a delay in testing Ancell 1.

Extension of the productive limits of the K-M-A field 1¾ miles to the northwest materialized when Joe Worsham et al's Waggoner Bros. 1, SEc BS&F Section 13, Abstract 394, filled 200 feet with oil after drilling cement plugs from 7-inch casing at 3808 feet. It will be deepened with machine. This outpost logged top of lime at 3588 feet with an elevation of 1134 feet and on this marker is 137 feet higher structurally than King Oil Company's Waggoner-Gulf 1, nearest producer. This unusual structural relief is due to Worsham et al's producer being on the south flank of the Electra arch.

Rated potential of 6600 barrels of 43.9-gravity oil and 2,000,000 feet of gas has been earned by Kadane Griffith Oil Company's J. A. Kemp 1, northeast diagonal offset to the first big producer in the Kadane sand, on proration gauge from sand at 3712-62 feet. This well was completed earlier this month. Top of lime was logged at 3626 feet or 2600 feet sub-sea.

Rathke Oil Company et al's T. L. Burnett-Gulf 1-A, near C NW NE HT&B Section 4, A-572, 3 miles northwest of Worsham et al's test, was drilling at 3190 feet, with an elevation of 1137 feet. It is due to enter the big lime near the 3200-foot level, as it is only a short distance north of an Ordovician failure, the first for the south portion of the Electra arch.

Wildcats and Outposts Swell Drilling

Steady growth of drilling activity on proved acreage is being augmented by a series of wildcats and outposts. Heyser, Heard & Clardy's Fassett-Tuttle 1, SWc SA&MG Section 3, A-267, on the north bank of the river, is an intermediate test for the most easterly and northeastern producers. King Oil Company, Perkins & Cullum's T. L. Burnett 1, NWc S½ SE W. W. Carroll Section 2, A-434, 1⅔ miles northwest of nearest production, has started operations. Hanlon & Buchanan, Inc., recently purchased 460 acres to the east of the latter project, and in N. Templeton Section 2, A-543, and in the south portion of Jas. A. Bradford Survey, A-27, after finding a seismograph high for the area. Cash bonus of $600 per acre was credited with having been paid for the latter acreage, plus specific drilling obligations. F. W. Merrick, Britt Cranfill et al have financed the drilling of a Strawn test near the west border of Wichita County and south of the Electra field, with location tentatively assigned to the W. T. Waggoner tract, NEc SW H&TC Section 35, Block 5.

The Texas Company is destined to become the first major to share in the deep production. This company's First National Company 23, SEc Lot 8, Block 26, offsetting production, has changed to cable tools after cementing 7-inch pipe at 3606 feet, with an elevation of 1009 feet, and First National Company 24 was drilling at 1630 feet. Continental Oil Company, comparatively large lease owner, is making its first entry through having started operations on Waggoner Bros. 1-E, SWc Lot 2, BS&F Section 11, A-387. It is a northeast offset to a sub-marginal producer.

Staley Oil Company's J. M. McFall 1, NWc of 243.8-acre lease, H. B. Balch Survey, A-12, near east edge of production, was rated at a half-bailer of oil per hour after drilling to 3985 feet, or 2979 feet below sea level. First saturation was encountered at 3850 feet. Nitro shot is expected to convert this test into a

NORTH TEXAS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ARCHER COUNTY—		
Golding & Cochran, Kelley 1, sec 11	*	1238
Henry et al, Garvey 1, sec 1802	*	502
Westmount Oil Co., Dempsey 3, blk 10	65	1108
Wilson & Ligon, Powell 5, blk 119	*	2310
BAYLOR COUNTY—		
Baker et al, Martin 1, sec 233	*	2602
CLAY COUNTY—		
Metzner et al, Taylor 2	150	1118
COOKE COUNTY—		
Kingery Bros. et al, Johnson 1	350	1219
FOARD COUNTY—		
Burnham et al, Ward 1	*	2370
COTTLE COUNTY—		
Hynes et al, Lee 1	*	5468
JACK COUNTY—		
Champlin & Bass, Mantooth 1	143	3288
Edwards et al, Clayton 2	*	3030
Yorktex Pet. Co.-State Oil Corp., Clayton 3-B	40	3028
MONTAGUE COUNTY—		
Gulf, Dennis 1	7	1159
THROCKMORTON COUNTY—		
Gibson & Jennings, Polk C. S. Lands 2	*	1540
WICHITA COUNTY (K-M-A)—		
Blackwell O&G Co., Hodges 1-A	500	3792
W. H. Bohner et al, First Nat'l Co. 1-A, blk 26	1900	3840
Cato Oil Co., Kemp 2, blk 1	1172	3796
Kadane-Griffith Oil Co., Kemp 1, lot 2, blk 1	5500	3762
C. A. Mangold 2, blk 38	1400	3730
King Oil Co.-Perkins-Cullum, Mangold 2, blk 38	1500	3766
Murray & Griffey (was Staley-Grace-Woods), J. R. Pace 1	220	3925
Omohundro et al, First Nat'l Co. 2, blk 28	2500	3713
Staley Oil Co., First Nat'l Co. 1, blk 44	250	3880
WICHITA COUNTY—		
Barton Bros., Honaker 1	2	255
Dinsmore & Stipe, Burnett 10	4	514
Hill et al, Birk 1	*	525
Mogren & Anderson, Goetze 4, sec 2	*	1540
Perkins-Cullum Oil Co., Burnett-Gulf 1, sec 1	5	1579
Pois & Schultz, Foster-Allen 1-J	125	1269
Proctor et al, Foster-Allen 24-A	12	845
Seaberry & Rose, Hunt 1	*	665
WILBARGER COUNTY—		
Staley-Wynne Oil Co., Waggoner Est. 20-G, sec 32	75	2427
YOUNG COUNTY—		
Black Gold Oil Co., Shields 1, sec 446	620	3893
Collins et al, Box 2, sec 1911	*	610
Lupton & J. McLester, Medlin 4	750	4095
Scarborough et al, McBrayer 1, sec 1904	*	757
Wo-Mac Oil Co., Peters 1	*	752

*Failures; †Junked; ¶Million cu. ft. gas.

commercial pumper. Top of lime was called at 3723 feet, with an elevation of 1006 feet.

Seek Drilling Cost Reduction

Routine drilling within the older section of the field has reached the status where the operators are seeking means of speeding up completions and reducing the over-all costs. The casing program affords little opportunity for lowering costs, unless the customary 7-inch oil string is replaced by smaller pipe. Currently operators are appropriating $25,000 to $27,000 for each completion, but the average cost of a flowing completion will undoubtedly be reduced to approximately $20,000 later. Operators are being tempted to use rotary to drill and complete wells in the more prolific and uniform sand areas. Heretofore, it has been the accepted custom to change to cable tools after cementing the oil string, although Clyde-Texan Oilfields Company's Burnside 1 was an early exception. Blackwell Oil & Gas Company's W. L. Hodges 2, W. H. Spillers Survey, situated in the Kadane sand belt, used rotary in drilling sand at 3748-56 feet, and flowed 60 barrels hourly for 3 hours. Later gauge showed 808 barrels initial. Top of lime was recorded at 3680 feet, with an elevation of 1026 feet.

Concentration of companies and operators around the K-M-A deep play, with liberal appropriations to invest in proved and wildcat leases, creates an unusual opportunity to finance the drilling of wildcats supported by geology or geophysical data of merit. Wichita County currently affords the best opportunity for this type of promotion, but numerous projects are slated for Clay, Archer and Wilbarger counties. An independent group have announced plans to drill a Strawn test on the C. Collins tract, J. Tyler Survey, A-568, 7 miles east of K-M-A deep production and 3 miles west of Wichita Falls' fairgrounds. Deep Oil Development Company, discoverer of the deep area, has announced plans for a 4000-foot project to be drilled in northwestern Clay County on the C. H. McClellan tract, C. F. Stanley Survey, A-407, about 7 miles northeast of Wichita Falls.

Clay County's most important production in the Strawn is in the Worsham pool, where Walter Gant et al developed prolific production last May at 3920-27 feet. A second natural producer was scored in August, and C. M. Worsham 5 cored the Strawn saturated section at 3883-3904 feet. Pipe was cemented in the latter at 3900 feet, then gun-perforated opposite Canyon at 3376-84 feet to make a pumper without testing the lower zone. Gant et al have started operations on Worsham 6, located 330 feet from east and 2970 feet from south lines of H&TC Section 37, Block 4. Barnett Petroleum Corporation's Ben Nutter 1, Strawn project on a 2100-acre block about 2 miles northwest of Blue Grove, Clay County, was drilling at 1850 feet.

DR. IRVING PERRINE, consulting geologist of Oklahoma City, spoke before a meeting of the Oklahoma City Geological Society January 17, on the diamond mining industry of the United States.

WEST TEXAS FIELDS

Wasson field producer flows 1597 barrels 35-gravity oil.

* * *

North portion of Permian Basin gaining drilling activity.

Midland, Texas.—Enforcement of the production shutdown for 6 consecutive Sundays in West Texas fields will probably involve fewer exceptions than any other district in the state. Current production ranks third among the 8 districts within the state, and the curtailment will likely cause some of the large purchasers to pull on surplus stocks piled up since the output rose above the total demand last August.

Majority of the big fields in West Texas can be placed on lower allowables without incurring physical damage through water flooding. Excessive quantity of water is produced in the Hendrick field and the McCamey and Howard-Glasscock districts.

Gaines County section of the Wasson field contributed one of its largest producers when Continental Oil Company and Amon G. Carter's Wasson 4, SWc PSL Section 48, Block AX, gauged 1597 barrels of 35 gravity oil with 1,825,000 feet of gas. Lime was acidized at 4974 feet with 8000 gallons with poor results. Hole was deepened to 4986 feet, then shot with 310 quarts of nitro at 4848-4986 feet. Heretofore, operators have discounted the value of nitro shooting because of the nature of the lime zone. Nitro has been used by wells in Yoakum County section of the same field. Continental Oil Company's Wasson 1-B-53, southwest diagonal offset to the discovery producer, flowed 824 barrels initial with 1,300,000 feet of gas through open casing and tubing after using 1000 gallons of acid at 4996 feet.

Permian Drilling Gains

North portion of the Permian basin is steadily gaining in field activity, and will have a major drilling program under way by late spring. Bulk of this work will center upon the Wasson, Bennett, Slaughter and possibly the Duggan areas. The Bennett field, Yoakum County's first strike, added one of its largest wells when Texas Pacific Coal & Oil Company's Bennett 3, SWc NW Section 678, Block D, gauged 1540 barrels oil and 2,784,000 feet of gas after 620-quart nitro shot at 5100-5250 feet. This company has found nitro more effective than acid for stimulating production.

Petroleum and the Future of the Permian Basin

By JOHN R. SUMAN, Vice President, Humble Oil & Refining Company

Delivered at the annual meeting of the Midland Chamber of Commerce, January 21, 1938.

MY subject covers a great deal of territory—a sturdy young empire known geologically as the Permian Basin which has already started to go places in the production of petroleum. Geologically the Permian Basin covers parts of six states. This term "Basin" possibly needs a word of explanation. It does not refer to the elevation or depression of the surface of the land but rather to the structure of the underlying rocks. For example, the high "Staked Plains" of the Texas Panhandle are a part of the Basin, although they compose the highest continuous area in this state. It might be interesting to note here, that a German scientist, Dr. Ferdinand Roemer, in a report on Texas based upon a trip made through the inhabited portions of the state in 1845 to 1847 came to the conclusion that the greater part of this broad highland would never be accessible for cultivation by civilized man.

Texas and New Mexico oil operators generally think of the Permian Basin as extending approximately from Sweetwater on the east to Artesia, New Mexico, on the west and from central Pecos County on the south to Hall County on the north. These boundaries, embracing over 46,000 square miles, or an area somewhat larger than the state of Pennsylvania, include all of the present producing oil fields in West Texas and Southeastern New Mexico. In spite of the fact that the Permian Basin is a relatively new oil producing area, it has already yielded 1,034,000,000 barrels of crude oil which exceeds by 11 percent the total production of 932,000,000 barrels in Pennsylvania, the state in which oil was discovered in 1859, and which is spoken of as one of the most important oil producing states. The Permian Basin should ultimately produce several times more oil than Pennsylvania. The Basin also compares favorably with the important oil producing state of Oklahoma, for although it has produced only about one fourth as much oil to date as has our sister state, its proven reserves are nearly twice as great.

The history of oil in West Texas and

Southeastern New Mexico dates back 16 years. In 1922, when a total of 34,000 barrels was produced in Mitchell County, scarcely more than routine attention was given to the possibilities of the great area to the west. Although the Big Lake pool in Reagan County was brought in during the following year, the total cumulative production by the end of 1925 was less than ten million barrels. Most of you will recall that in 1926 the various major pools in Winkler, Pecos, Ector, Crane-Upton, and Howard-Glasscock counties were discovered and that there soon followed a hectic campaign of development culminating in a peak production for the area of 133 million barrels in 1929. Even before this peak was reached, the veritable flood of oil rendered available by the prolific wells drilled during this three-year period not only affected the market adversely but so overtaxed the ability of the buyers to move the crude that it became necessary to pinch back the tremendous producing capacity of the Yates pool, thereby initiating the first large-scale example of proration in the United States. During the year of this peak production the Hobbs pool in New Mexico was discovered, and it also was placed upon a basis of strict curtailment from the beginning.

In the five-year period from 1930-1934, the yearly production of the Permian Basin dropped to a low of 48,000,000 barrels in 1934, due to the discovery of the enormous East Texas field and the flattening of the demand curve incident to the depression. Since 1934, production of the basin has risen steadily to 74,000,000 barrels in 1937. At the present time there are 9000 producing wells located on 2150 leases in 92 pools in the Permian Basin. These wells now have a total allowable of something over 300,000 barrels per day, which is equivalent to about 110,000,000 barrels per year. There are 342 companies engaged in the production of this oil. A significant and altogether wholesome circumstance is that for each of the 19 so-called major companies represented in the basin, there are 17 independent operators actively engaged in producing oil. The Permian Basin has roughly a little over 10 percent of the wells, 22 percent of the daily allowable, and 23 percent of the proven reserves of the state of Texas.

If one were to paint the economic picture of the Permian Basin for the next generation, he would undoubtedly have to do it in oil. In this great enterprise the citizens of West Texas and New Mexico and the oil companies are partners, in a large sense. Let us have a glance at the balance sheet for 1937. During this period there was an average of 460 rigs active in the area, 360 of which were in West Texas. The cost of drilling and equipping these wells was $103,000,000, or approximately equal to the gross value of the 114,000,000 barrels of oil produced. In addition, the oil industry spent about $23,000,000 for producing oil, $25,000,000 in royalties, rentals, and bonuses, and $6,500,000 for ad valorem and gross production taxes. These expenditures provided employment for 16,000 employes who received about $29,000,000 in wages and salaries. To complete the picture of what petroleum means to business in the Permian Basin, account must also be taken of the expenditures of pipe line companies, refineries, gasoline plants supply houses, and transportation companies, each of which items would amount to a considerable sum. It might seem strange that an enterprise should willingly spend $157,000,000, or an amount 50 percent greater than its gross income of $103,000,000 during the year.

I would like to give you some idea of what oil has meant to West Texas in regard to taxes. The first year that oil was produced in any quantity, that is in 1926, the total assessed valuation of the 43 counties constituting my company's West Texas Division had an assessed valuation of $299,440,011. In 1937 the assessed valuation of these same counties was $401,859,371, an increase of 34.20 percent. The percent of increase in your area was much greater than that of the state as a whole which increased 10.05 percent. We find that almost the entire increase is in the value of oil properties and that there has been an actual decline in total taxable values other than oil properties during this period.

Oil has not only helped West Texas and this vicinity but we believe it has been the major cause of the unusually good condition existing throughout the states of Texas and New Mexico. Probably New Mexico is not so dependent on oil as Texas, but we in the oil business think that oil is Texas' greatest asset. Texas is the largest producer among the oil states and there is no other industry in Texas that compares with the oil industry. Vast as is the extent of our state, every section is dotted with known or probable oil producing areas. At present there are 343 producing areas in 115 of our 254 Texas counties with a total of 78,018 producing wells. Oil has affected every part of the state. It is safe to say that petroleum development has benefited every town, every county, and every person in our state. Oil has become the greatest source of private and public revenue in Texas. The oil industry spent close to $700,000,000 in Texas and New Mexico last year. In these two states it employs 175,000 people directly, and indirectly provides a livelihood for many thousands of others in collateral businesses and occupations. The value of oil produced in Texas is some 2½ times greater than the value of its cotton crop and grater than the entire income from farm products. I do not have the figures on New Mexico at hand, but it is known that oil contributes substantially to the wealth of that state. Is it any wonder that Texas and New Mexico should have weathered the depression better than neighboring states which depend chiefly upon agriculture? I believe that today the income from oil is supporting, directly or indirectly, at least one fourth of the population of Texas. Certainly it has made possible a higher standard of living throughout the state than would have existed without it.

Oil resources in Texas and New Mexico have acquired relatively stable values within recent years. Through improvement in producing and refining methods and by the development of sound conservation policies, we have reached the point where, in my opinion, oil properties are as good collateral for loans as any other properties. It is fortunate that this is true because in those states where oil is as important as in Texas and New Mexico it is essential that bankers make loans on oil properties.

It is estimated that the present wells in Texas will be capable of producing a million and a half barrels daily for the next 9 or 10 years, and yet each year sees from 12,000 to 15,000 new wells drilled at a total cost of nearly

WEST TEXAS Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ANDREWS COUNTY (Wildcat)—		
Honolulu Oil Corp., Parker 1-6	*	4806
DICKENS COUNTY—		
Litchfield-Morrissey, Harris 1	*	2001
ECTOR COUNTY (Foster)—		
Arkansas F. O. Co., Johnson 1	496	4237
Atlantic, Johnson 3-A	909	4250
Mid-Continent, Griffin 1	35	4457
Sinclair Prairie, Johnson 3	386	4260
Stanolind, Cowden 7-B	1580	4169
Superior, Cowden 2	1162	4285
ECTOR COUNTY (Goldsmith)—		
Beatty, Bowles & Borsodi Land Trust 2	154	4286
W. H. Dunning Est., Cummins 3-A	304	4290
Gulf, Goldsmith 62	2220	4205
Goldsmith 64	504	4210
Landreth Prod. Corp., Scharbauer 1-J	342	4200
Mid-Continent, Slator 1	660	4273
Shell, Slator 2	461	4285
ECTOR COUNTY (Harper)—		
Shell, Cowden 4-B	419	4301
Oil Well Drl. Co., E. F. Cowden 1-B	625	4235
ECTOR COUNTY (Jordan)—		
Oil Well Drl. Co., Connell 1	424	3640
ECTOR COUNTY (North Cowden)—		
Sinclair Prairie, Wright 3	784	4222
FISHER COUNTY (Wildcat)—		
Dean Bros. et al, Young 1	*	3110
GAINES COUNTY (Wasson)—		
Continental, Wasson 1-B-53	824	4996
Continental-A. G. Carter, Wasson 4-48	1597	4986
HOWARD COUNTY—		
Ennisbrook Oil Corp., Texas L&M Co. 17	1448	2830
F. W. Merrick & Bristow, Roberts 4	1091	2972
Royal O&G Corp.-Cosden, Roberts 17	1248	2594
Sinclair Prairie, Jones 5	*	3085
W. E. Production Co., Wilcox 3	20	3340
JONES COUNTY—		
Sinclair Prairie, B. King 13-B	291	2160
LOVING COUNTY (Mason)—		
Woodley Pet. Co., T. P. Land Trust 1-a	78	3963
MARTIN COUNTY—		
Harris-Anderson Corp., Robertson 1	*	4189
PECOS COUNTY (Taylor-Link)—		
Lee Pet. Corp., University 18	503	1736
PECOS COUNTY (Yates)—		
Ohio, I. G. Yates 58-A	1040	1590
UPTON COUNTY (McCamey)—		
Cardinal Oil Co., Wooley 9	171	2180
Peerless Oil Corp., Shirley-Conoco 3	618	2213
WARD COUNTY—		
M. J. Delaney, Inc., Cooper 1	*	3000
Gulf, Estes 71	1237	2679
Estes 72	950	2685
Estes 73	530	2680
Estes 74	1016	2682
Estes 75	1104	2681
Humble, Richter 26	876	2930
Provine & O'Quinn, Hadwin 3	20	2242
Texas Co., University 1-E	1074	2694
WINKLER COUNTY (Henderson)—		
Humble, Walton 19-C	2500	3050
Stanolind-Westbrook-Thompson Hold. Corp., Hendrick 3	228	3090
WINKLER COUNTY (Kermit)—		
Amerada, Daugherty 6-A	619	2971
Gulf, Clapp 25	596	3090
Humble, Colby 26-C	753	3070
Magnolia, Walton 120	1890	2938
Walton 121	482	3210
Walton 125	482	2900
Walton-State 9	330	3275
WINKLER COUNTY (Keystone)—		
Continental, Walton 3	90	3398
Gulf, Keystone 23	387	3515
Richardson Oils, Walton-Humble 8-B	209	3405
WINKLER COUNTY (Scarborough)—		
Cities Service, Scarborough 5	389	3052
YOAKUM COUNTY (Bennett)—		
T. P. C&O Co., Ruth Bennett 3	1540	5250
YOAKUM COUNTY (Wasson)—		
Shell, Lynn 1	222	4999
T. L. Wynne, Tr., Willard 1	294	5000

*Failures; †Junked; ¶Million cu. ft. gas.

one third of a billion dollars. The number of wells that the industry can afford to drill from year to year is definitely limited. This being true, the logical location of these wells becomes a primary problem in equity and conservation. As I view the picture, the reasonably wide spacing of oil wells will best serve to promote the sustained prosperity of the industry and the public, preserve equity between lease and royalty holders, allow the recovery of the maximum amount of oil in a manner both efficient and orderly, and more nearly insure a steady flow of petroleum products to the public at reasonable prices.

Finally, if I should be able to leave but one thought in your minds, I hope it will be this—that the future prosperity of the Permian Basin is vitally dependent upon the sane, orderly, and conservative development and production of its greatest potential resource, petroleum.

East Texas takes week off on permit requests

Austin.—The Texas Railroad Commission this week granted permits for drilling 225 new wells in Texas, 128 less than were approved the previous week.

Operators in the East Texas field were granted 5 permits, including 3 in Gregg, 1 in Cherokee and 1 in Smith County. There were 12 new locations reported from the East Central Texas district.

West Texas operators reported 38 locations, including 10 in Ector and 10 in Ward County. The West Central Texas district listed only 18.

There were 87 permits approved in the Gulf Coast and Southwest areas; including 21 in Refugio, 15 in Nueces and 20 in Webb County.

Permits for 40 new wells were approved in the North Texas district, including 21 in Wichita County, while operators in the Panhandle listed 13.

U. S. air lines consume record amount of gasoline

Air lines of the United States flew 68,000,000 miles and carried 1,200,000 passengers in 1937—a new all-time high. They flew 504,000,000 passenger miles, 2,300,000 express-ton miles and 7,000,000 mail-ton miles.

To do this the airlines used 33,451,000 gallons of gasoline and 786,000 gallons of oil, this gasoline and oil being supplied at 205 different cities throughout the nation.

B. F. HAKE, Gulf Oil Corporation, was elected president of the Michigan Geological Society at the January meeting. He succeeds Dr. Robert B. Newcombe, former assistant state geologist, now with Associated Petroleum Company. Other officers named by the society include: R. E. Newman, assistant state geologist, vice president; Robert Beck, Carter Oil Company, secretary-treasurer; and, Dr. S. G. Bergquist, Michigan State Geological department, business manager.

EAST TEXAS

Three Woodbine wildcats quit, one opens new gas area.

* * *

Drilling activity again on increase in Biggest field.

Tyler, Texas.—Trio of lower-Trinity projects in the East Texas Woodbine belt have been checked off as failures, and several others are nearing their depth goal. These deep tests involve heavy expenditures and comparatively little results have been obtained to encourage widespread explorations. Wildcatting in the Woodbine is almost at a standstill, although a new gas area from this horizon has been established for southwestern Anderson County.

No Market for Gas

The new Anderson County producing area was assured early last week when H. L. Parsons et al's H. B. Hemby 1, John Gossett Survey, 5 miles southwest of Elkhart, made 3,000,000 feet of dry gas daily while cleaning itself through ¼-inch tubing choke. Potential gas yield is much greater than the restricted gauge indicates, according to observers. Hole was drilled to water at 5487 feet. Five-inch pipe was cemented at this depth, then gun-perforated with 24 shots opposite Woodbine sand at 5409-19 feet. The well registers 2200 pounds closed-in pressure. First Woodbine sand was logged at 5394-5424 feet, and second sand at 5458-87 feet, with an elevation of 262 feet. Unless a connection and a liberal gas sales contract is obtainable with one of the gas pipe lines in the district this discovery will be a liability to its owners.

Thirty-day production gauge in progress on Tide Water Associated Oil Cimpany et al's McElreath-Suggett 2-C, lower-Trinity producer for the Opelika area, Henderson County, recorded a maximum yield of 389 barrels of 56.4 gravity distillate and 9,980,000 feet of gas through ½-inch tubing choke at plugged back depth of 8038 feet. Distillate production is being sold to an East Texas refiner. Mid-week gauge showed 346 barrels of water-white distillate and about the same volume of gas. This new deep strike is isolated from gas lines, and cannot be operated beyond the 30-day period unless a market is provided for the gas. However, another lower-Trinity test is reported to be contemplated by the Opelika discovery group, with location down dip on the structure in hopes of attaining oil production.

Humble Oil & Refining Company's Southern Pine Lumber Company 1-C, Jarvis area, Anderson County, was ordered abandoned the past week in second Glen Rose at 9154 feet. No shows were reported in the Trinity series. The heavy rig used on this project is to be moved to Gregg County to replace the outfit on Humble Oil & Refining Company and Gulf Oil Corporation's Robertson 1, which is idle in hard sand at 8087 feet. The latter is 4 miles east of production in the East Texas field, and is to continue to the Lower Marine, having logged top of Travis Peak at 7325 feet.

Walter L. Goldston et al's Smith 10, which tested water in the lower-Trinity in drilling to 6600 feet, removes the Sulphur Bluff field, Hopkins County, from consideration as a potential source of deep production. The well has been plugged back to complete in Paluxy sand passed up near the 4500-foot level. Tom Hunter, American Liberty Oil Company et al's Carter 1, deep project for the Kelsey dome, Upshur County, was drilling at 6035 feet, with broken anhydrite present in cores at this depth.

Limestone County Test in Lower Marine

Lower Marine was penetrated by a second Limestone County test the past week. Stanolind Oil & Gas Company and Ramsey Petroleum Corporation's Norris 1, Thornton faulted area, entered the rarely tapped zone near the 7600-foot level, and no shows were recorded in coring to 8067 feet. Owners plan to drill until water is encountered. Pure Oil Company's Kendrick 16-T, Mexia field, lost drill pipe in Lower Marine at 8841 feet after penetrating the section 1171 feet with negative results, and is plugging back to try and complete in Woodbine. Repeated gun-perforations of casing opposite Travis Peak section, which was 2020 feet thick, and opposite lower Glen Rose, failed to show oil or gas, although salt water was evident.

Operations are slated to begin shortly on a lower-Trinity test in eastern Smith County, near Chapel Hill. Location will be in the Thomas Payne Survey, 6 miles east of Tyler. The project will be drilled by Hunt Oil Company, Sun Oil Company, Shell Petroleum Corporation and others.

Marion-Upshur Lower Marine Test Planned

Sun Oil Company, which has a 4500-acre block in west Marion County, Texas, extending over into Upshur County, is reported negotiating with other companies having acreage in that

region, including Gulf Oil Corporation, Magnolia Petroleum Company and The Texas Company, for a proposed lower Marine test on the block.

In the northern part of Harrison County west of the village of Woodlawn, Sargent & Kenyon have leased 3000 acres around the James Gorman, Thomas Gray and Henry Vardeman surveys, for a test.

Location for The Texas Company's lower Marine test in the old Bethany field, Panola County, will be on the Claude Sadms tract, Thomas Cox survey. Drilling contract has been let.

Gulf Oil Corporation is reported to have failed to exercise an option assigned it by C. C. Carter on a large block of acreage he took for geophysical exploration from Temple Lumber Company in Sabine County, Texas. The acreage was explored for several weeks with a gravimeter unit.

EAST TEXAS Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
JOINER AREA—		
Allen & Davis, Alford 1 (55/100-ac)	1000	3620
Gulf, Alford 12 (157.05-ac)	1500	3742
Humble, Blackwell 60 (325.79-ac)	6500	3702
Blackwell 61 (325.79-ac)	6800	3698
Fuller 16 (118.46-ac)	10,000	3686
Moore 7-A (50-ac)	10,000	3692
Marr Drlg. Co., Gossett 7 (33.8-ac)	500	3677
Octo Oil Corp., Deason 3 (5-ac)	2000	3646
Stanolind, Schuyler 10-B (73.57-ac)	1500	3682
Sun, Cooper 5 (28-ac)	2400	3637
KILGORE AREA—		
Arkansas F. O. Co., Hughey-Ross 39 (220-ac)	5400	3550
Carter et al, Foltz 4 (1.64-ac)	2600	3538
Grace Oil Co., Hughey 4 (1.43-ac)	2000	3510
Gulf, A. Muckelroy 29 (152.05-ac)	9000	3554
Still 28 (188.33-ac)	4000	3571
Magnolia, Andrews 8 (54.36-ac)	9700	3620
McDonaid Bros. et al, Brox 6 (12-ac)	8500	3636
Moss et al, Marshall 5-A (38.92-ac)	3000	3548
Reserve Dev. Co., Brown 6 (33.2-ac)	1000	3660
Shell, Willoughby 18 (57.7-ac)	5000	3600
Southport Pet. Co., I&GN 7, Tr. 4 and 5 (7.3-ac)	125	3538
Sugar et al, Gill 4 (7.2-ac)	3600	3625
Sun-Seaboard, Smith 15 (57.31-ac)	7200	3628
LONGVIEW AREA—		
Gen. American Oil Co., Adams 23-a (102.65-ac)	9200	3584
Erle P. Halliburton, Phillips-Shell 11 (95.63-ac)	4200	3662
Humble, Harris 31 (175.18-ac)	4600	3521
Phillips 12 (82¾-ac)	5000	3676
Looney & Singer, Shelton 2-a (21-ac)	*	3722
Magnolia, Christian 22 (64.95-ac)	9800	3665
Jones 11 (65-ac)	9100	3644
Rudco O&G Co., Nicholson 3, Tr. 2 (44.9-ac)	500	3718
Shell, Brawley 6 (24.12-ac)	5500	3701
Salter 7 (35.4-ac)	6400	3715
Sun, Hargrave 23 (199.3-ac)	750	3708
Shoults 15 (90.28-ac)	9200	3692
Stanolind, Jones 9-A (30.58-ac)	8500	3682
Lathrop 29-B (114.8-ac)	225	3636
Tide Water Associated-Stanolind, Tenery 5 (17.9-ac)	4200	3585
Turner et al, Jones 11 (63.84-ac)	9600	3651
Tysco Oil Co., G. Anderson-Findley-Thomas 7 (11.88-ac)	7700	3504
FRANKLIN COUNTY (Talco)—		
Gray & Wolfe, Bolin 7 (36.95-ac)	313	4317
Humble, King 50 (1053.36-ac)	70	4306
Stroube & Stroube, Hedrick 7 (65-ac)	364	4312
HENDERSON COUNTY (Cayuga)—		
Howard et al, Barton 2 (160-ac)	2000	3077
TITUS COUNTY (Talco)—		
Humble, Monnig Dry Goods Co. 11 (107.56-ac)	294	4320
Lucey Pet. Co. et al, Williams 13 (319.85-ac)	367	4270
ANDERSON COUNTY—		
Humble, Southern Pine 1-C	*	9154
MARION COUNTY (Rodessa)—		
Fohs Oil Co., Kempfer 1, R. Bennington sur	307	6092
PANOLA COUNTY—		
Dr. C. K. Crews, Garves 1, A. J. McGowan sur	*	2667

*Failures; †Junked; ¶Million cu. ft. gas.

Rigs running in East Texas field on increase

Kilgore, Texas.—Resumption of large scale drilling in the East Texas field is indicated by the volume of work launched since the year-end slump. Survey of field operations reveals that 70 rigs are active as compared to 56 the previous week, and approved permits released in recent weeks by the railroad commission are ample to maintain this volume of field activity for several months.

Currently majors are completing the majority of the new wells. The field accounted for 39 producers the past week, and 27 of these were drilled by the large companies.

Bottom-hole pressure declined 11.22 pounds during the month ending January 8, according to survey conducted by engineers of the commission. The new reading on 91 key wells gives the field an average of 1,119.98 pounds, or within 1.42 pounds of the low mark reached last October 12. An unexplained increase of 12.37 pounds was reported on the November 12 reading, and this was maintained by closing the field for 4 Sundays beginning November 21. Reservoir pressure on January 8 was 56.49 pounds below the level reported by the commission on its January, 1937, reading.

Gas producing area extended to Sherman County

Amarillo, Texas.—Expansion of the Texas Panhandle gas belt to the northwest into Sherman County occurred early last week when Indian Territory Illuminating Oil Company's Davis 1, C NE T&NO Section 404, Block 1-T, increased its flow to 12,000,000 feet of dry gas daily at 2810 feet, or 789 feet above sea level. First gas was logged at 2705-12 feet, using cable tools, which replaced rotary at 2677 feet. Davis 1 will be deepened.

Unusually high structural position was recorded by this Sherman County wildcat in entering the lime series at 2380 feet. This development caused other companies to seek lease protection around the 14,000-acre drilling block prior to the appearance of gas production, and lease bonuses have ranged from $1.50 to $5 per acre cash. Trading extended south into northern Moore County.

Sherman County has merited consideration as a potential gas source as 4 failures launched during 1927 showed gas in the big lime section and each found salt water near sea level depth. Completion of the first commercial gasser in Hansford County, located immediately east of Sherman County, last year revived lease activity in both counties, which are on a direct line between gas fields in the Oklahoma and Texas Panhandle.

Shell Petroleum Corporation's Nellie Albright 1, SE SW NE H&GN Section 68, Block 24, western Wheeler County wildcat, failed to encounter oil or gas shows in drilling to 2360 feet, with an elevation of 2437 feet. It is on a 3600-acre block assembled last June along the north flank of the buried granite ridge. Top of lime was logged at 2118 feet, or more than 200 feet lower than a failure near the north rim of production.

Pindu Corporation's A. B. McAfee 1, SEc H&GN Section 38, Block A-6, eastern Gray County wildcat on a 9900-acre block, also looks doubtful for production, and was drilling in lime at 3410 feet.

TEXAS PANHANDLE Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CARSON COUNTY—		
Texas Co., Boney-Magnolia 9	536	3150
GRAY COUNTY—		
Danciger, Byrum 6	152	3225
Drilling & Exploration Co., Leopold 8	530	3298
L. R. Hagy-Harrington & Marsh, Bell 1	¶8.3	2748
Kewanee Oil Co., Arnold-Morgan 14, sec 149	724	3283
King Oil Co., Vallmert-North 9	367	3285
Sinclair Prairie, Harrah 4	193	3251
HUTCHINSON COUNTY—		
Phillips, Perkins 15	104	3034
Smith Bros. Ref. Co., Umphries 2	543	3152
Stanolind, Haile 11-A	466	3102
MOORE COUNTY—		
Panhandle Eastern, Thompson 1	¶34.6	3490
Shamrock O&G Corp., Sneed 11, sec 29	¶19.4	3008
WHEELER COUNTY—		
Vaughan et al, Godfrey Krc 1	¶18.2	2005
P. Macina 1	¶19.7	2005
K. Pakan 1	¶28.9	1993
K. Pakan 2	¶24.6	2065
K. Pakan 3	¶11.3	2065
Valencik 1	¶20.8	2225

*Failures; †Junked; ¶Million cu. ft. gas.

Sarco Creek discovery well making little oil on pump

Beeville.—Rual B. Swiger is making a production test on pump in Carrie Wood B-1, discovery well of Sarco Creek, Vicksburg sand field in soutwestern Goliad County. The well, located in the John Shearn Survey, was making around 2 to 3 barrels per hour by this method.

It had been drilled to 5048 feet, casing landed on bottom and after perforations were made at 5009-15½ feet, the hole filled about 3500 feet with oil, but failed to have enough pressure to flow. Mechanical difficulties caused water intrusion several times and in recementing, it is likely that much of the formation was sealed. Owners announce that this likely will carry on further exploration to define the structure.

Shreveport.—V. A. Hughes and associates' Lyster 1, William Bateman Survey, Cass County, Texas, wildcat near Hughes Springs, was shut down last week at 4231 feet in Georgetown lime, logged at 4310 feet. An electrical logging device was run but showed nothing of interest.

A wildcat in Panola County was abandoned at 2667 feet in Dr. C. K. Crews' Graves 1, A. J. McGowan Survey.

Arkansas Fuel Oil Company was pumping in mud at C. M. Abney 1, Eason Little Survey, Harrison County, which recently blew out at 4820 feet, was killed and is being deepened.

SOUTHWEST TEXAS

Nueces County test projected to go 12,000 feet.

* * *

Eighth sand in Sweden field showing oil production.

Corpus Christi.—Having acquired the holdings of L. A. Douglas in the Turkey Creek, or West Saxet field, Nueces County, Phillips Petroleum Company plans immediate development of this 5800-foot Frio sand area. The deal included 475 acres, all of which is within the play, and consideration is reported to have involved a small cash consideration plus an overriding royalty on certain properties. None of Douglas' royalty holdings were included.

Phillips Petroleum Company worked the structure geophysically and drilled one well before a deal was made with L. A. Douglas to drill Charles McKinzie, which proved the field. The company already was well protected in the area and the new purchase gives it the larger part of the close-in acreage.

In the meantime, four outpost wells are active, but none of them will be down to the sand before the latter part of the week. Their outcome will have a vital effect on the future of the producing area.

Two Deep Ones at Agua Dulce

Agua Dulce district, also in Nueces County, was receiving two new deep tests, one of which is rumored to be projected to 12,000 feet, while the other likely will be an 8000-foot operation. Union Producing Company's Minnie Brown 1, Section 87, Pauls Subdivision, and in the extreme northeast side of the field, is moving in rig for the purpose of carrying the hole 12,000 feet, or into the Cockfield. Offsetting this well, the company's Galladay 1 is drilling after setting casing at 6785 feet. Still farther northeast, A. B. Simmonds 1 is at 8021 feet on a deep project. A string of 9½-inch casing was set at 5487 feet, indicating that this, too, will be a very deep test. Over on the west side of the field, M. L. Rivers A-4 is drilling at several thousand feet. It is in the vicinity of tests drilled to a Vicksburg sand at 7300 feet, showing oil, but deepened due to failure to complete successfully. At the south end of the field, Texon Drilling Company's Sevier 3 has been making a series of tests through perforations above 7110 feet.

Fred Shield's T. P. Shelly 1, outpost to the deep sand zone in the Refugio field, Refugio County, showed salt water in the lower zones and was abandoned at 7140 feet. C. E. Starett Oil Company is preparing to commence N. J. Ryal's 1-A, intended to be a deep test for the field.

Felmont Oil Corporation's Torsion Balance prospect at Bloomington in Victoria County comes in for further exploration following an oil showing in the Frio in George H. Echols' Dunseth 1, F. Perez Survey. The well recovered 150 feet of 45-gravity oil, 250 feet of salt water and no pressure on a drill-stem test at 5938-46 feet, but was drilled ahead. He has an obligation for another test one mile to the northwest of the Stubblefield tract.

No Salt Water in Victoria Well

W. V. Bowles and Company's Robertson 1, discovery well of the East Telferner field in Victoria County, likely will be reworked to cut high gas volume, which apparently has hindered oil flow. The test is reported to have gauged 63 barrels of oil through ⅜-inch choke with 1060 pounds tubing and 1460 pounds casing pressures. It originally had flowed 650 barrels per day before the gas broke in. Reports were current when the well started "acting up" that it was showing a large volume of salt water. A check with company, however, was to the effect that the well had never shown any salt water and up to the time of this writing was not showing any salt water.

Eighth and deeper sand found at North Sweden

Laredo.—Deeper production in the North Sweden field, Duval County, to increase its number of sands to eight, was the most eventful happening in the Mirando district's comparatively dull week. This discovery, which provides a south extension to the pool, indicates that this reserve ultimately will be at or near the top of the list in South Texas.

Hiawatha Oil & Gas Company's Southland Life Insurance Company 6, after finding shale or sandy shale in the majority of the uper zones, developed salt water in sand at 4821-25 feet, minor gas blow, 25 pounds pressure and a little drilling mud in the Pettus zone which was drill-stem tested at 5390-5420 feet. Sandy shale was cored 5410-15 feet and sand to 5420 feet. The test, however, was carried ahead, finding a cap at 5495-96 feet and sand with a few shale streaks near the bottom at 5496-5513 feet. Elevation is 397 feet, derrick floor. A drill-stem test of 10 minutes duration was made at 5495-5508 feet through ⅜-inch chokes, top and bottom, recovering 100 feet of mud cut with oil and 110 pounds pressure. A second drill-stem test from 5495-5513 feet recovered 125 feet of mud, largely oil, 190 pounds pressure and no salt water in 20 minutes through ⅜-inch chokes top and bottom. Casing was set and completion was being effected late in the week.

Due to the faulting in the field, it is remotely possible that this is Pettus sand, but general opinion is that the Pettus zone was found about 5400 feet with the new

SOUTH TEXAS Completions

MIRANDO DISTRICT

Company, Well and Location	Init. Prod. Bbls.	Depth
DUVAL COUNTY—		
Bridwell, Ancira 9 (N. Sweden)	600	4793
Glasscock, Farias 3 (N. Sweden)	700	5381
Gulf Stream, Hoffman 10-B (Hoffman)	25	2753
Hiawatha, Parr 6 (N. Sweden)	600	4748
Magnolia, Duval County Ranch 1, sur 61	*	3672
Duval County Ranch 13 (Piedre Lumbre)	150	2066
Reynosa, Rodriguez 2 (Seven Sisters)	275	2660
JIM HOGG COUNTY—		
Darby, Holbein 3-B (Las Animas)	*	1825
McMULLEN COUNTY—		
Jones, Ezzell E-1, (Ezzell)	150	1543
Marion, Lark 1 (Calliham)	12	1056
STARR COUNTY—		
Fair, Pena 2-B (Samfordyce)	750	2996
Lowe and Ely, Gonzales 1, por. 72	*	3020
WEBB COUNTY—		
Anderson & Stieren, Martin 4 (Oilton)	185	1894
Bridwell, Billings 1, sur 36	*	2510
Killam, Garcia 26 (Killam)	145	1995
Moore, Martin 3 (Oilton)	176	1900
SAN ANTONIO DISTRICT		
BASTROP COUNTY—		
Southern Cross, Smith 1, Blalock sur	*	2228
BEXAR COUNTY—		
Putnam, Wetz 10 (Von Ormy)	3	650
GUADALUPE COUNTY—		
Housel, Carter 2 (Dunlap)	40	2315
Tapp, Posey 1 (Darst Creek)	100	2609
MEDINA COUNTY—		
Walker, Riff 1, Hans sur No. 43	*	990
TRAVIS COUNTY—		
Coffee, Bremand 1, Santiago del Valle grant	*	500
Miester 1, P. Conrad sur	*	26
Hamer, Benson 1, Walker Wilson sur	*	595
WILSON COUNTY—		
Pattico, Keller 1, Karnes County School Lands sur	*	1235
CORPUS CHRISTI AREA		
BROOKS COUNTY—		
Standard Oil of Texas, Mestina 3, lease 2 (Martinez sur)	*	3552
CALHOUN COUNTY—		
Humble & Plymouth, Welder 16 (Heyser)	750	5480
HIDALGO COUNTY—		
Atlantic, American 1, sec 175, Llano Grande grant, (perf 8990-9005)	¶10 & 50	9180
JIM WELLS COUNTY—		
Miss-Tex, Randolph 1 (Premond)	47	2339
KARNES COUNTY—		
Luling, Boyce 17 (S. Burnell)	400	3674
LIVE OAK COUNTY—		
Loma, Stridde 1, Turner sur	*	1280
Powell, Simmons 1 (Ezzell)	150	1483
Simmons 2 (Ezzell)	100	1475
NUECES COUNTY—		
Humble & Barnsdall, Smith 3 (Flour Bluff)	*	6682
Turcotte 2 (Flour Bluff)	725	6654
Humble & Barnsdall, Webb 12 (Flour Bluff)	750	6675
REFUGIO COUNTY—		
Hogan, Kelly 1, Power sur	*	6437
Nordan & Morris, O'Connor 3 (Tomoconnor)	900	5995
Shield, Shelly 1 (Refugio)	*	7140
Union, Lambert 67 (Tomoconnor-Greta)	450	5930
Lambert 68 (Tomoconnor-Greta.)	600	6155
SAN PATRICIO COUNTY—		
Plymouth, Welder 89-C (Plymouth)	*	6201
Schwab, Lane 1, Cubage & Miller subd	*	5510
VICTORIA COUNTY—		
Commonwealth, Bennett 7 (Heyser)	650	5746
Humble & Plymouth, Vandenberg 1 (Heyser) (perf 5586-88)	450	6033
Union, Keeran 8 (Keeran) (perf 5228-31½)	¶5 & 50	6512

*Failures; †Junked; ¶Million cu. ft. gas.

sand 100 feet deeper. This zone compares with the one productive in the lower Sweden field, which is productive at 5900 feet. A series of faulting accounts for the increased depth.

The new discovery is 660 feet from the east line and 2310 feet from the north line of Section 12, Ball Ranch Subdivision, and is 6000 feet southeast of the nearest Pettus sand production and is just south of producers in the 4700-4800-foot zone.

Ezzell Extended

Another 4800-foot southwest extension to the Ezzell Ranch field, McMullen County, was considered probable with Edwin M. Jones' Harry Ezzell F-1 near its completion level. The well, SE NW Section 29, is the second attempt by Jones this year to extend this prolific shallow producing area. The previously drilled outpost is Ezell E-1, SE Section 24, completed during the past week for an estimated 150 barrels per day by head. It cored the sand at 1524-30 feet and is bottomed at 1543 feet in shale.

Bexar County limestone yields 25 barrels per day

San Antonio.—A shallow Anacacho limestone oil pool 15 miles southwest of San Antonio, Bexar County, was opened January 20 when R. W. Fair started pumping Medina Irrigated Farms 1. The well was acidized with 2000 gallons and after being cleaned out started producing about 25 barrels of 30-32 gravity crude per day. It topped the formation at 1150 feet and is bottomed 40 feet deeper. Casing was set at 1140 feet.

This well is in the southwest corner of Lot 1, Block 55, Medina Farms, and is on a block of about 3000 acres.

Deeper Production Gives Saxet Heights Chance to Pay Out

By EARL S. POST, Staff Writer

RESUMPTION of the townlot-drilling program in the Saxet Heights area, west edge of Corpus Christi, in Nueces County, was considered a certainty with the discovery well of a new sand flowing into the tanks late in the week. The well is highly important in that it will tend to change a number of unprofitable leases into profitable ones.

Discovered two years ago, this 4100-foot area, saw a flurry of drilling in which dozens of rigs were operated on homesites of numerous Corpus Christi residents. Spacing was so close that in many cases wells were completed less than 50 feet apart and leasing of adjoining land was required to provide enough room to build slush pits and erect rigs.

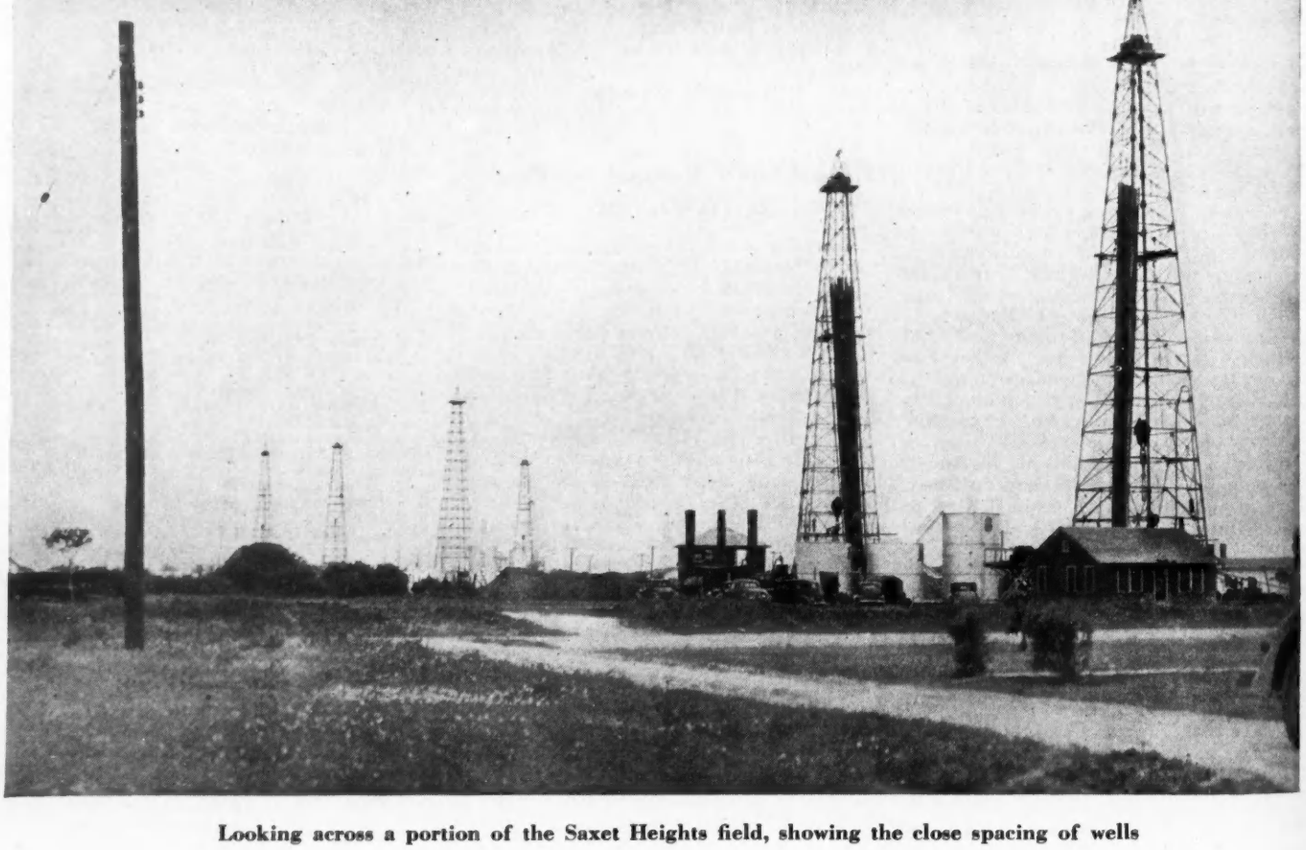
This particular district, despite a rather thick sand section, was so closely drilled that per-well recoveries have been in many cases insufficient to pay out the initial investment. The new sand, 1100 feet deeper than the first level, will enable operators to deepen present producers, thereby securing additional production and in most cases, profits.

The newest producer is J. K. Culton's H. B. Baldwin 4, 660 feet south of Baldwin 1, original discovery well of the area. It was completed through perforations at 5159-64 feet, where it flowed 131 barrels of 36.5 gravity oil and 60 barrels of salt water in 24 hours through 5/16-inch choke, showing pressures of 825 pounds on tubing and 1400 pounds on casing. The salt water is believed to be coming from above and channeling down the side of the liner. This production is from the Heterostegina zone, and compares in the geological section with the Greta sand.

This test, in Block 20, Russell Farm Lots, offsets a number of very small tracts with closely spaced wells. It, therefore, should lead to the deepening of many of these wells immediately. In some cases, tests are still producing a fair amount of crude and a small number of twin operations may be expected.

Was Work Over

The new discovery originally was completed in sand at 4080-90 feet, well being carried to 4097 feet, 7-inch casing



Looking across a portion of the Saxet Heights field, showing the close spacing of wells

set on bottom and perforated. It flowed initially 730 barrels of oil per day through ¼-inch choke, and showed a gas/oil ratio of approximately 15,000 cubic feet to one barrel of crude. It made a large amount of salt water and production of oil materially declined, prompting the deepening. Finding the new sand at 5157-67 feet, 5-inch liner was landed on bottom and cemented, completion being effected through perforations.

Rig has been skidded one location north to the discovery well, which too is to be deepened to the new sand. This well, J. K. Culton's Baldwin 1, was completed November 2, 1935, flowing 2,000,000 cubic feet of gas and 62 barrels of 25 gravity crude per day through 5/32-inch choke from 4082 feet, casing being set at 4076 feet after sand was logged 4062-82 feet. Deepened to 4091 feet, still in sand, some months later, the well was recompleted for 12 barrels per hour through 5/32-inch choke with gas reduced from 55,866 cubic feet to 7778 feet per barrel. This production is from the Catahoula.

Too Close Spacing

During the life of the field, 256 wells were drilled. Of this number, 235 wells were finished as oil producers, 4 as gassers, and 17 as failures. A late report from the field showed 168 wells flowing either naturally or with the aid of valves, 56 either pumping or being agitated in an effort to make them produce, and 11 either dead or abandoned due to water intrusion.

The field's total recovery to January 1 aggregated approximately 4,260,000 barrels and the remaining reserve from the 4100-foot sand is calculated at not to exceed 2,000,000 barrels, making a total of 6,260,000 barrels. The proven acreage approximately 1290 acres. On this basis, the per-acre recovery to date amounts to 3300 barrels with a total expected recovery per acre approximating 4050 barrels per acre.

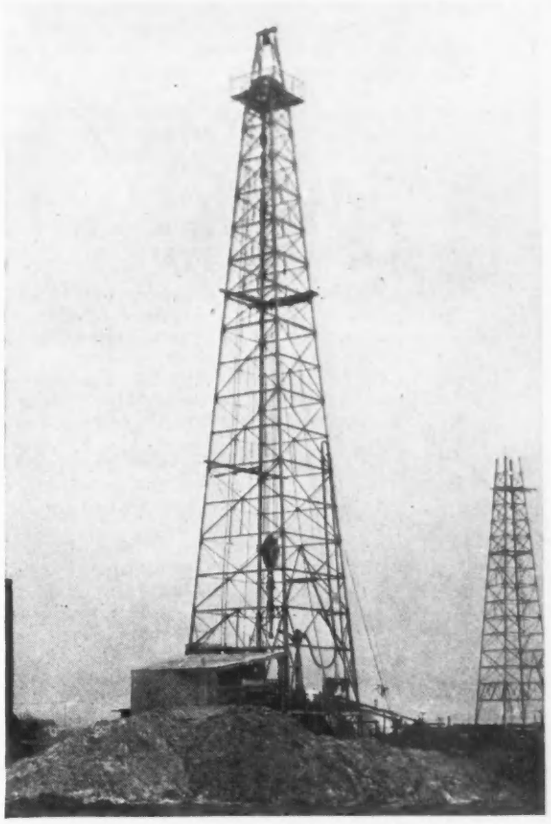
This low per-acre recovery is accounted for by engineers by the gas/oil ratios and close spacing affecting conservative control of production, thus pulling in water. In the majority of the field, the sand section at the 4100-foot level ranges from 12 to 60 feet in thickness. The oil saturation, however, covers from 4 to 12 feet in thickness with the remainder being gas, gas and minor oil content, or salt water, depending on position on the structure. The close relation of the gas to oil and oil to salt water made production problems rather difficult. In virtually every case, pipe was run through the sand and production obtained via gun perforation in the most saturated section of the oil sand.

Despite efforts of operators to control gas/oil ratios through perforation of casing near the bottom of the producing zone, gas intrusion caused more ratios to run as high as from 50,000 to 70,000 cubic feet per barrel with only a few wells producing with ratios below 10,000 cubic feet. As these millions of cubic feet of gas were popped into the air, the reservoir was being rapidly flooded with water. This has been particularly true of the closely spaced sector of the field. Along this line, the average spacing for the field is 5.5 acres per well. Considering that a portion of the field is spaced on 10-acre units, the portion in townlots is spaced on an average of about 1½ acres per well.

The pull on the gas reserve in the field has materially reduced the flowing energy of the entire structure, but considerable of the wider-spaced acreage has been sufficiently controlled to prevent complete dissipation of the reserve through water intrusion.

The uncovering of the new and deeper sand, therefore, is of vital interest economically. Despite the fact that the field constitutes only 1290 acres with 235 wells actually producing, there are 44 separate operators holding 141 individual leases. There is not a single major company in the field and with few exceptions the leaseholders find this development one of their first, if not their first venture in the actual operation of oil properties.

The average cost of drilling wells in the field during its hey-day, including the completion with the least expensive



J. K. Culton's H. B. Baldwin 6, discovery well of a new deep sand for the Saxet Heights field. It flowed 131 barrels of oil per day from 5167 feet.

Record of Deep Wells Drilled in Saxet Heights Field, Nueces County

COMPANY	Lease	Well	Date Completed	Elevation Derrick Floor, Feet	Depth, Feet	Top Regular Sand, Feet	Top Deep Sand, Feet	REMARKS
Barnsdall Oil Co....	A. Weil.....	1	11- 8-36	55	7502	?	5175	Abandoned. Oil show 6211-16 feet.
Clarkwood Oil Co...	H. B. Baldwin....	1	6- 1-37	51	7040	4102	5263	Drill stem test 5262-69 feet. Recovered little drilling mud in 6 minutes. Abandoned.
J. K. Culton.....	H. B. Baldwin....	4	1-17-38	53	5167	4045	5157	Deepened from 4097 feet. Completed 5167 feet to open deep sand.
J. K. Culton.....	H. B. Baldwin....	6	10-15-36	53	5225	4050	?	Plug back and perforated 4075-82 feet. Made oil well.
J. K. Culton, et al...	H. B. Baldwin....	1-C	4-11-36	53	7020	4083	5190	Recovered 26 fourbles salt water in 20 minutes 5190-5200 feet.
Tom Graham, et al..	P. Whelan.....	1	4-19-36	37	5234	4035	?	Plug back and perforated 4058-60 feet. Made gas well; no 5100-foot sand recorded.
J. P. Nash.....	G. W. Hatch.....	1	4- 6-36	56	5200	4060	5173	Cap rock 5173-74 feet. Sand 5174-86 feet. Drill-stem test 5167-77 feet. ¼ and 5/16 inch chokes. 3 thribles oil/cut mud. 14 min. 15 min. drill-stem test. 5178-86 feet showed salt water.
Refugio Refining Co.	J. Weil.....	1	3- 4-36	44	5006	4103	....	Salt water in regular sand, abandoned. Too shallow for deep sand.
Taylor Refining Co..	Country Club.....	7	3-12-37	48	7531	4124	5110	Salt water in top sand; sand 5110-22 feet. Drill stem test recovered 14 thribles salt water in 14 minutes.
Taylor Refining Co..	Incarnate Word...	2	1-11-37	44	5430	4052	5158	Salt water in top sand; lower sand dry. Abandoned.
Taylor Refining Co..	F. H. Kohler.....	2	5-23-37	51	5146	4040	5142	Plug back completed as oil well in 4000 foot sand.

equipment, was from $13,500 to $17,500 per well. The deepening cost to the new sand, including equipping, will be about $5,000 per well. The deep sand, as indicated by wells drilled on the edge of the structure, likely will cover much of the present area producing in the shallow sand. Likewise, it may extend even farther east and southeast than the present shallower zone.

Want 10-acre spacing in Sam Fordyce field

Austin.—Ten-acre spacing for wells producing from the 3000-foot Graham sand in the Sam Fordyce field in Hidalgo and Starr Counties, was urged before the Texas Railroad Commission at a hearing last week. The plan was advocated by Phillips Petroleum Company.

The proposed rules also included 300 feet of surface casing and an oil string cemented to within 1500 feet of the surface. The company asked for a maximum gas/oil ratio allowance of 2000/1 with a total displacement factor to be applied to high gas/oil ratio wells.

Proration would be on acreage and bottom-hole pressure, with 50 percent allocated on each factor. The potentials would be returned by flowing wells through a ¼-inch choke 6 inches long for a 24-hour period.

The new sand is located northwest of the Barlow area in Starr County, and is found at 3125 feet. This is lower than the water level in some other producing areas. About 100 feet of sandy shale lies between the Barlow and Graham sands, and the new sand has an estimated thickness of 35 feet.

TEXAS GULF COAST Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ANAHUAC—		
Humble, Clarke 19	465	7112
DICKINSON—		
Ken Ben Oil Co., Stewart 6	633	8936
Pure, S. Levine 2	701	8098
FRIENDSWOOD—		
Humble, Hoidale & Forster 1	624	6050
FAIRBANKS—		
Amerada-Stanolind, Mills 1	675	6852
FIVE CORNERS—		
Texas Co., Pierce Estate B-12	456	5540
HARDIN—		
Humble, Chambers 2	585	7580
HASTINGS—		
Humble, Beers D-7	586	6080
McDeed 5	624	6080
Stanolind, Shaw 15	695	6080
Sam Wilson, Mills 1	*	6521
HUMBLE—		
A. W. Crosby, Brazo Oil Co. 12	292	1377
KATY—		
Stanolind, Security Trust 1	¶3¼	7420
MAGNET—		
Humble, Cockburn 5	120	5540
MARKHAM—		
Hamil & Hamil, Myers 1	*	4644
OLD OCEAN—		
Harrison & Abercrombie, Fee 2, dr 10,856, pb perf 9990 to 10,066 ft.	500	10066
PICKETT RIDGE—		
Great Plains Oil Co., Bishkin & Myers 1	87	4717
PIERCE JUNCTION—		
Hamil & Smith, Prudential Investment Co. 4	441	4804
SILSBEE—		
Republic, Howell 1	443	6860
SPINDLETOP—		
Stanolind, Gladys City 100	397	3164
TOMBALL—		
Amerada-Stanolind, Juergens 1	442	5597
Humble, Dooley 1	451	5570
Norvell 2	464	5586
Tomball Townsite Unit 25, No. 1.	312	5592

*Failures; †Junked; ¶Million cu. ft. gas.

Hastings southeast limit marked by salt water producer.

* * *

Friendswood limit being extended mile in two directions.

Houston.—Friendswood, Harris County, is expected to be extended one mile east and one mile north the coming week. Humble Oil & Refining Company drilled both outpost wells and has set casing in oil sands for production tests.

Humble Oil & Refining Company's Kiesling & Dixon 1, T. Choate Survey, was waiting on cement to set at 6050 feet. Two hundred feet of sand showing oil was logged at 5830 feet. It indicates that the Friendswood field will go in east across the Houston - Galveston highway.

North of production, Humble Oil & Refining Company's Pierce 1. Wm. K. Smith Survey, was waiting on cement to set at 6050 feet after logging top of the sand at 5951 feet. This well indicates a drop in the northward area and it is believed that the field will not go much further in this direction. Pierce 1 discovered a new gas sand a week ago when it blew out at 3847 feet and blew gas for 15 minutes before it bridged. Humble Oil & Refining Company completed Hoidale and Foster 1, Perry and Austin Survey. It made 624 barrels of pipe line oil daily through ¼-inch choke at 6050 feet.

Dickinson May Be Extended Southeast

Humble Oil & Refining Company's Peters 1, 13,000 feet east of so-called Gillock production and 12,000 feet southeast of production at Dickinson, J. W. Lytle Survey, Galveston County, was coring in shale below 9094 feet after running electric test. The well is reported to have cored sands which showed oil and according to some it will make an oil well. According to geological markers the well is running higher than the company's Kohman 1, a dry hole 7800 feet northwest of Peters 1. If Peters 1 is a producer it will be the largest extension to Dickinson since Gillock Petroleum Company extended the field some time ago to discover the so-called Gillock field.

N. W. Hunter made a new location at Hitchcock, Galveston County. Stewart 2 is 660 feet north of his Stewart 1, J. Spillman Survey.

Hastings Defined Southeast

Hastings, Brazoria County, was defined southeast last week by Sam E. Wilson's Mills 1, I. & G. N. Section 23. It was drilled to 6821 feet in salt water sand after logging top of sand at 6513 feet.

North of production at Hastings, two wells were waiting on cement to set. E. N. Hailey's Blummer 1, H. & T. B. Section 28 was down to 6059 feet in oil sand after logging top of sand at 6028 feet. Seven-inch casing was set at bottom. H. A. Potter's (Sensia) Blummer 1 was waiting on cement to set at 6096 feet after logging top of sand at 6078 feet.

Old Ocean, Brazoria County, was extended 1400 feet northwest by Harrison & Abercrombie's Fee 2, Polly & Chance Survey. It made 500 barrels daily through various size chokes. Tubing pressure was 3700 pounds. Fee 2 was drilled to 10,856 feet and 7-inch casing was set at bottom. Casing was perforated from 10,056 to 10,066 feet and from 9990 to 10,000 feet.

North of production at Lochridge, Brazoria County, Gulf Oil Corporation's Reiss 3, J. W. Hall Survey, made 45 barrels daily through a ¼-inch choke with a tubing pressure of 1200 pounds and a casing pressure of 1575 pounds at 6359 feet.

In the Fairbanks area, Harris County, Amerada Petroleum Corporation and Stanolind Oil & Gas Company's Mills 1, A. Larson Survey made 675 barrels of 37.5 gravity oil daily on a potential test. Tubing pressure was 1100 pounds and casing pressure was 2500 pounds. Mills 1 was completed when casing was perforated with 40 shots from 6838 to 6852 feet. The operators have made location for Peters 1, 466 feet out of the northwest corner of tract in W. K. Hamblin Survey, Abstract 317.

Drilling Campaign Started at Orange

A large drilling campaign has started at old Orange field, Orange County. Last week three new locations were announced on the southwest flank of the field which was opened by Tillery & Ryan's Chesson 1, which made 808 barrels daily on a potential test. Ryan & Thompson made location for Norwood 1, northwest of Chesson 1, Wm. Dyson Survey. J. M. Campbell made location for Scales 1, 1500 feet southeast of Chesson 1. Gulf Oil Corporation's Granger 1 is a south offset to Chesson. When these three wells start drilling it will make six active rigs at Orange.

Glenn H. McCarthy is preparing to work over Broussard Trust 1, Cheek area, C. Hillibrandt Survey, Jefferson County. Last week the discovery well made 156 barrels of fluid daily through 9/64-inch choke, 40 percent salt water. Tubing pressure was 1775 pounds and casing pressure 2750 pounds. It was

completed through perforations at 7718 to 7727 feet. These perforations will be squeezed with cement.

North of Nome, Sun Oil Company announced location for Morris 1 in the B. B. B. & C. Survey. Also in the same area Humble Oil & Refining Company made location for another "6500-foot core test." This core test will go deep enough, probably to pick up the formation which is producing at Nome.

Two wildcat locations were announced in Chambers County. Laverne Decker will drill Broussard Trust 1 in the Double Gum Bayou area, 1875 feet north of the south line and 935 feet east of the west line of H. & T. C. Section 30. This operator has drilled a dry hole in this area. In the Canada Ranch area, A. A. Cameron made location for White 1, 1629 feet south of the north line and 466 feet west of the east line of S. Brill Survey, Abstract 55.

Test Fails on Matagorda County Wildcat

Pierce Estate's Fee 1 was preparing to drill cement plug at 6200 feet after a drill-stem test failed from 6619 to 6627 feet. Fee 1, north of Van Vleck, I. & G. N. Survey, Matagorda County, attempted a drill-stem test and the tool slipped. The well showed a slight blow and 40 barrels of drilling mud. The hole was plugged back to 6200 feet.

Sun Oil Company's Bayshore 1, south of production at Palacious, L. Goodwin Survey, Matagorda County, which discovered a new sand at 9200 feet the previous week, was making 350 barrels of distillate daily through a ¾-inch choke. Casing pressure was 2150 pounds. Sun Oil Company has laid a line from the field down to the bay and will barge the distillate to Port Lavaca.

Pan American Production Company has made its first location at South Bay City field, Matagorda County. Richers 1 is 330 feet out of the northwest corner of E. Richers 50-acre tract in I. & G. N. Section 3.

Katy gas field, Waller County, was extended a mile southwest last week when Stanolind Oil & Gas Company et al's Security Trust 1, H. & T. C. Section 99 made 3,330,000 cubic feet of gas daily through ¼-inch choke. Tubing pressure was 2375 pounds and casing pressure 2700 pounds. Casing was perforated with 30 shots from 7276 to 7286 feet.

Austin.—An increase of 285 barrels in the allowable for the Barbers Hill field, effective January 1, is provided in a schedule issued by the Texas Railroad Commission last week. The new allowable is 10,113 barrels per day.

Shreveport.—Fifteen drilling permits were issued last week by the minerals division, Louisiana Conservation Commission, of which five were in North Louisiana divided among the following parishes: Caddo, two, none in Rodessa; Claiborne, one (Lisbon); Lincoln, one (Lisbon); and Webster, one. The ten in south Louisiana were divided among the following parishes: Ascension, one; Acadia, one; Cameron, two; Iberville, one; La Fourche, one; Jeff Davis, one; St. Mary, one; St. Martin, one; and St. Barnard, one.

SOUTH LOUISIANA

Jennings slated to continue most active field in area.

★ ★ ★

Woodlawn wildcat continues to show gas and distillate.

Lake Charles.—It is expected that Jennings, Acadia Parish, will continue to be the most active field in South Louisiana during 1938. Due to the showing made in Superior Oil Company's J. Clement 1, north flank test, it is predicted that the well will start off a large drilling campaign equal to that on the south and southwest flank, which made this the most active field in 1937.

Superior Oil Company's J. Clement 1 drilled to 7324 feet in shale where drill pipe stuck. Plugged back to sidetrack at 5303 feet, the pipe became stuck again and it was necessary to plug back to 5000 feet where at the end of the week the well was shut down waiting on cement to set. While drilling to 7324 feet the semi-wildcat logged sand showing oil from 7028 to 7088 feet. It is believed there are other sands beside the 60-foot solid section. However, the 60-foot section showed 50 ohms and 140 milivolts on an electrical logging device and according to these indications the well should produce commercial oil. Cuttings logged the Discorbis at 5466 feet, Heterostegina at 5486 feet, Marginulina at 5556 feet, Leckelt sand at 5777 feet, Heywood sand at 5910 feet and Robira sand at 6215 feet.

Humble Oil & Refining Company will try again to establish commercial production on the South Crowley prospect, Acadia Parish. Location was made from Boyd Finch 1, 590 feet south of the north line and 2290 feet east of the west line of Section 22-10s-1e. This company has drilled several 10,000-foot wildcats on this prospect.

Woodlawn Wildcat Shows Gas and Distillate

Union Sulphur Company's Calcasieu National Bank 1, Woodlawn area, Section 12-9s-6w, Jefferson Davis Parish, showed gas and distillate again on a production test. After squeezing perforations from 8276 to 8281 feet, cement was drilled out to 8296 feet and casing perforated with 17 holes from 8284 to 8286 feet. A 12/64-inch bottom-hole choke was set at 4000 feet. When opened it made 2,350,000 cubic feet of gas daily and two barrels of distillate per hour. Tubing pressure was 1600 pounds.

Another 10,000-foot wildcat quit last week when Continental Oil Company abandoned Fay 1, north of Lake Arthur, Section 31-10s-3w, Jefferson Davis Parish. It was drilled to 10,935 feet in sandy shale. It tried to blow out on January 13 and bridged and drill pipe was stuck. An electrical logging device showed two ohms from 10,098 to 10,108 feet.

Superior Oil Company abandoned its second test on the flank of Vinton, Calcasieu Parish. Grey 2, 1000 feet south of Grey 1, Section 4-11s-12w, was abandoned at 5790 feet. It drilled to 5790 feet and was plugged back and drilled in a side-tracked hole to 4350 feet. Vicksburg formation was logged at 4350 feet.

In Little Cheniere area, Cameron Parish, Humble Oil & Refining Company made location for a 10,000-foot wildcat. Miami Corporation 1 is 660 feet north and 600 feet west SWc Section 7-14s-6w.

Timbalier Bay Wildcat to Test Again

Gulf Oil Corporation will try another test on State PP 3, Timbalier Bay wildcat, Lafourche Parish. Perforations from 6955 to 6963 feet have been squeezed with cement. This same sand will be tested again. Last week it was washed with oil and swabbed but failed to flow. It was believed that the screen and perforations became clogged with sand. State PP 3 has already shown pipe line oil on drill-stem tests and production tests but difficulties are encountered in making it flow.

In the Raceland area, Lafourche Parish, Amerada Petroleum Corporation and Louisiana Land & Exploration

SOUTH LOUISIANA

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ENGLISH BAYOU—		
Fohs Oil Co., Castle 18 (wo)	112	7045
GARDEN ISLAND—		
Texas Co., State 25	1492	5810
LOCKPORT—		
Magnolia, Miller 35	*	7237
NEW IBERIA—		
Canal Oil Co., Bolivar 2	475	4009
Bulloch & Burke A-2	450	3965
Texas Co., Burke 1	*	7487
SULPHUR—		
Union Sulphur, Fee 854	114	5185
Fee 855	127	4272
TEPETATE—		
Continental, Homeseekers D-4	222	8313
VINTON—		
Superior, Grey 2	*	5790
WEST HACKBERRY—		
W. T. Burton, Ellender 1	*	5778
Ellender 2	*	4640
JEFFERSON DAVIS PARISH—		
Continental, Fay 1, n of Lake Arthur 31-10s-3w	*	10935
ST. MARY PARISH—		
Shell, Barbour 1, Glenwild area 21-		

*Failures; †Junked; ¶Million cu. ft. gas.

Company's South Coast Corporation 1, Section 34-15s-19e, was drilling cement plugs at 10,262 feet last week. Five-inch casing was set at 10,262 feet after the hole was drilled to 10,314 feet. A production test will be made over the week end.

At Bayou Des Allemands, St. Charles Parish, Amerada Petroleum Corporation and Louisiana Land & Exploration Company's St. Charles Land Company 1, west of production, Section 13-15s-20e, was preparing to perforate casing from 6890 to 6900 feet at the end of the week after making a test from 6923 to 6929 feet. The test was made after casing had been perforated with 10 shots. It showed three joints of brackish mud and one joint of sand in 15 minutes through ¼ and ⅜-inch chokes.

Superior Oil Company has evidently discovered a new sand at Bosco, St. Landry Parish in Larcade 5, Section 35-8s-3e. Drilled to 10,326 feet, the well tried to blow out when salt water sand was logged. Larcade 5 is a work over and has been drilled below 10,000 feet several times and has been plugged back. Last week it was down to 9786 feet in a side-tracked hole.

On the east flank of Jefferson Island dome, Iberia Parish, The Texas Company made location for Bayless & Jones 1, 1920 feet east and 340 feet north of the most westerly northwest corner of Section 58-12s-5e.

Jefferson Lake Company's Lake Peignur 414, Jefferson Island dome, 12s-5e, which has been shut down for some time was opened the past week and flowed oil for 15 minutes and went dead. The wildcat flows oil after being shut in for several weeks. It is producing from sands at 6570 to 6576 feet.

New Oil Sands Found in Iberville Parish

Two old oil fields in Iberville Parish may be revived in drilling by new sands found last week. Humble Oil & Refining Company's Schwing Lumber Company 1, Bayou Blue area, Section 67-9s-11e, was waiting on cement to set at 6837 feet in sand showing oil, logged at 6829 feet. Hole was reported 11 degrees off vertical. This sand is new for Bayou Blue.

At Bayou Choctaw, Louisiana Crusader Oil Company's E. B. Schwing 1 was coring in oil sand at 8847 feet last week after logging top of the sand at 8846 feet. This is the second new sand logged in the field.

In the Patterson area, St. Mary Parish, Shell Petroleum Corporation abandoned Barbour 1, Section 21-15s-12e, at 10,517 feet. A gas sand was logged from 10,088 to 10,108 feet, which showed 55 ohms and 150 milivolts on an electrical logging device.

Lake Hermitage Deep Test Cores Broken Shows

Gulf Oil Corporation's Lafourche Basin Levee District 7, Lake Hermitage field, Section 12-18s-25e, Plaquemines Parish, continues to core broken formation showing oil and gas. At the end of the week the deepest well for the field was down to 9720 feet in sandy shale. Gas sand was logged at 9701 to 9702 feet; 3 feet of oil sand from 9702 to 9707 feet and sandy shale with an odor of oil from 9716 to 9717 feet.

NORTH LOUISIANA

Third Travis Peak producer completed at Cotton Valley.

★ ★ ★

Lisbon northeast extension test shows encouraging signs.

★ ★ ★

Lincoln Parish wildcat testing show in basal Glen Rose.

Shreveport.—Addition of the third Travis Peak oil producer in the Cotton Valley field, Webster Parish, the second in two weeks, has augmented interest in this 5600-5800-foot horizon which heretofore has been regarded as secondary to the exploration of the lower Marine below 8000 feet, which yields gas and distillate.

The third Travis Peak oil producer was completed last week by A. G. Oliphant in Hodges et al 1, C NE NW 34-21n-10w, which was completed from the Travis Peak (Holloway) sand at 5672 feet flowing 1481 barrels in 24 hours through ½-inch tubing choke with tubing pressure 650 pounds and casing pressure, 1450 pounds. Gravity of the oil is 50.8. There is so far no proration on this horizon of Cotton Valley, although the lower Marine, classed as a gas field, is allocated on gas production to 1,500,000 cubic feet per well per day.

Some geologists believe that the Travis Peak producing area may be limited to the southwest side of the structure, where the present production is, or may include a belt around all sides of the structure. On the top part of the high this horizon has been present but has been too tight to produce.

Oliphant's new well is one mile northeast of W. G. Ray Drilling Company's Stewart 1, C SW NE 33-21n-10w, completed the week before, flowing 35 barrels per hour through 1-inch choke fro 5807 feet. Ray's well had Holloway (Travis Peak) sand from 5791 to 5807 feet, with elevation of 247 feet while Oliphant's Hodges 1, with elevation of 205 feet, logged the saturated Travis Peak sand at 5650 to 5662 feet.

Lisbon Extension

A quarter-mile northeast extension of the Lisbon field appeared likely last week as Magnolia Petroleum Company tested J. C. Fowler 1, C W½ NW SW 28-21n-4w, which logged saturation from 5192 to 5197 feet with elevation of 289 feet. Total depth is 5207 feet.

C. R. Schuster had trouble in running casing in Sallie Lloyd 1, SW SW 2-20n-5w, ¾-mile southwest outpost that showed 7 feet of heavily-saturated basal Glen Rose lime and 5 feet additional of fairly saturated formation from 5257 to 5271 feet.

Only one well was officially completed in Lisbon last week that being Atlantic Refining Company's Maggie Patton D-1, SE SE 29-21n-4w, which gauged 56 barrels of oil per hour through ¾-inch choke with tubing pressure 180 pounds and casing pressure, 400 pounds at 5247 feet with porosity from 5229 to 5237 feet and from 5241 to 5243 feet. In the south end of the field F. H. Brown's Patton Estate 1, after flowing 65 barrels hourly for 6 hours through ¼-inch choke, ceased to flow and was re-acidized. This test with elevation of 320 feet logged porosity from 5357 to 5364 feet and from 5370 to 5377 feet. Both of these wells logged two strata of porosity as did the discovery well, E. T. Oakes and associates' Patton Estate 2, NE NE 1-20n-5w.

Test Lincoln Wildcat

Oakes, Easton and associates last week perforated preparatory to testing 9 feet of porous lime with good porosity and resistivity from 5932 to 5941 feet in Griggs 1, C SW 36-18n-1w, Lincoln Parish wildcat. Casing (5½-inch) was cemented at 6121 feet with total depth of 6260 feet. The porosity being tested is in basal Glen Rose.

Magnolia Petroleum Company's Frank Sexton 1, C SW NE 32-23n-9w, lower Marine test in the old shallow Shongaloo gas field, was drilling shale and lime at 5642 feet after coring Oolitic lime with an odor of gas from 5579 to 5586 feet. This test, with elevation of 225 feet, logged massive anhydrite from 4348 to 4558 feet and last stringer from 4627 to 4652 feet.

Gulf Oil Corporation's Goodpine 1, C SE SW 25-14n-8w, Bienville Parish, was coring red and blue shale at 7220 feet and Arkansas Fuel Oil Company's Frankline Realty Company 1, C NE NW 20-11n-9w, Red River Parish wildcat, was drilling at 6768 feet. Glassell & Whitehurst's LeLong 1, NW NE 25-12n-11w, deep test, shut down for several months at 250 feet was moving in heavy rig to resume before February 1.

Definite assurance has been given that Joe Modisett and associates' Frost Lumber Company 1, C NE SW 14-21n-1e, Union Parish, wildcat shut down at 7010 feet in lower Marine topped at 6161 feet, would be deepened to 9000 feet. In Morehouse Parish on a secondary high, east of the Monroe Uplift, W. J. Furlong, Jr., and asso-

ciates' E. M. Clarke 1, Section 10-20n-7e, continued drilling in lower Marine at 5900 feet.

Standard Oil Company of Louisiana's Brownfield 2, C SW NW 5-19n-5w, was coring at even 9000 feet in shale and shells. It is a lower Marine test in the Sugar Creek gas field, Claiborne Parish.

Rodessa Quiet

Rodessa had a routine period last week with the main activity being centered in the Marion County end at Jefferson, which added one well and gave indications of being extended south one location.

The northeast end of the Louisiana side added one well and the Miller County, Arkansas, part where activity has dropped sharply, was featured by the entry of Gulf Oil Corporation which made location for a west outpost. There are 45 producing wells in Marion County and 63 in Arkansas.

One location south of production at Jefferson, Fohs Oil Company's Lizzie Henderson 1, U. Ewing Survey, logged 18 feet of porous saturated Gloyd lime topped at 6006 feet; elevation is 227 feet. Total depth is 6024 feet and final casing was being run. This test topped the Henderson horizon at 5988 feet and besides showing the usual gas it also showed some oil, something new on the south end of the Jefferson part of the field though wells on the north end have done so before.

One location east of Fohs' test, George Barham, on a 108-acre tract farmed out to him by Ohio Oil Company, was moving in for P. O. Beard 1, which is a south offset to Gulf Oil Corporation's P. O. Beard 1, drilling at 5390 feet after topping a stray anhydrite stringer at 4910 feet and topping first regular anhydrite stringer at 5278 feet.

Gulf Refining Company's west outpost location in the Miller County part of Rodessa is J. W. Hanner 1, SE SE 16-20-28.

In the extension of the Arkansas part of the field back into Louisiana, Alice Sidney Oil Company's Alexander 1, 2004 feet south and 442 feet east NWc 3-23n-16w, was completed flowing 11 barrels hourly through ¼-inch choke with 250 pounds tubing pressure and 600 pounds casing pressure. Total depth is 6004 feet and the well is producing from 10 feet of Mitchell sand logged from 5954 to 5964 feet; elevation is 229 feet.

The weighted bottom hole pressure average on the Louisiana side of the Rodessa field was 1586 pounds on January 1, according to data compiled by the engineers of the Rodessa Operators Committee. This represented a drop of 30 pounds in the weighted average in December, and is 658 pounds less than the 2314 pounds gauged when this data began to be taken July 7, 1936.

Total cumulative production in the Rodessa field to January 1, 1938, is 55,017,538 barrels of which 38,029,979 barrels was produced on the Louisiana side; 15,799,564 barrels on the Texas side, and 1,187,995 barrels on the Arkansas side. Rodessa's first oil well was completed in July, 1935, in Section 21-23n-16w, Caddo Parish. Production was first obtained on the Texas side in January, 1936, and Arkansas' producing area was opened in Miller County in June, 1937.

Total cumulative production in the Lisbon field to January 1, 1938, was 2,441,743 barrels from 155 wells completed to that date, 24 of which were on artificial lift. Two wells, J. R. Bevill and associates' Alex Edmonds 1, NE NE 16-20n-5w, 3 miles southwest of production, is listed as a commercial well with initial gauge of 100 barrels daily but no oil from it has been sold. T. L. James & Company's Baker 1, Section 25-21n-5w, also completed last August as a 30-barrel daily well, has sold no oil. The discovery well was completed at Lisbon December 25, 1936, and no dry hole has yet been recorded.

Try for Dixie Extension

An effort to extend the producing horizon of the shallow Dixie field, Caddo Parish, which has recently become active after a 9-year period of inactivity, is being made by Anderson & Galbrith of Oklahoma City, who have spudded S. S. Pittman 1, Section 14-19n-14w, on a 340-acre lease secured for them by D. W. Deupree of Shreveport in Sections 14, 15, and 23-19n-14w.

Across the Caddo Parish line from the Waskom shallow field (which is in Harrison County, Texas) Stanolind Oil & Gas Company leased 243 acres in township 17 north, range 16 west, and Skelly Oil Company leased 70 acres in Section 10-16n-16w.

Arkansas Fuel Oil Company has taken a geophysical exploration option on 12,000 acres around Section 2-14n-14w, DeSoto Parish. Continental Oil Company is reported to have discovered another geophysical high in Franklin Parish, centering in township 13 north, range 8 east. In Jackson Parish, Mid-Continent Petroleum Corporation has taken over 750 acres in the lower sections of township 15 north, range 4 west. In Ouachita Parish, J. K. Wadley of Texarkana and Shreveport has taken a block of leases in townships 16 and 17 north, range 1 east.

W. D. Perritt of Shreveport is leasing

NORTH LOUISIANA Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
BOSSIER PARISH (Sligo)—		
Union Prod. Co., Kerr 1, 24-17n-12w	¶40	5190
Triangle Drlg. Co., Herold A-1, 13-17n-12w	228	3114
CADDO PARISH (Rodessa)—		
Alice Sidney Oil Co., Alexander 1, 3-23n-16w	264	6004
CADDO PARISH (Pine Island)—		
Magnolia, Dillon Hrs. 22, 23-21n-15w	22	1730
J. J. Shulman, Hobbs 1, 28-21n-15w	10	1630
GRANT PARISH (Urania)—		
Georgeown Oil Co., Baldridge 1, 11-9n-1e	40	1512
CLAIBORNE PARISH (Lisbon)—		
Atlantic, Patton D-1, 29-21n-4w	1344	5427
LA SALLE PARISH (Urania)—		
Petroleum H&P Co., Russell 1, 26-10n-1e	200	1531
LINCOLN PARISH—		
Ludell Oil Corp., Gill 1, 36-20n-2w.	*	6000
UNION PARISH (Monroe)—		
Southern Carbon Co., Grayling 24, 32-22n-4e	¶3	2220
WEBSTER PARISH (Cotton Valley)—		
A. G. Oliphant, Hodges et al 1, 34-21n-10w	1481	5972
Woodley Pet. Co., Gray B-5, 27-21n-10w	530	8142

*Failures; †Junked; ¶Million cu. ft. gas.

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SHREVEPORT LOUISIANA

Lake Charles—Houma—Converse
New Iberia—Rodessa—Monroe
Cotton Valley—Greggton
Houston

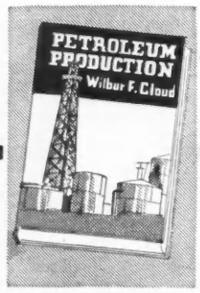
in Claiborne Parish in township 22 north, range 4 west. In the same parish, A. M. Neelley has assigned 3000 acres of a block in township 22 north, range 5 west, to an associate, E. J. Bouwama of Lansing, Michigan.

Amerada Petroleum Corporation has "farmed out" a 120-acre lease in Section 7-20n-4w, Lincoln Parish, south of production in Lisbon, to Delta Drilling Company which is starting a test at Wise & Tatum 1, in the northeast quarter of that section.

North Dakota test below 6720 feet

Minot, N. D.—Standard Oil Company of California's Nels Kamp 1, Williams County, first deep test in the history of the state, was drilling below 6720 feet last week. Cores were taken with increasing frequency during the week, but information on formation is being withheld.

A temporary water supply to alleviate a shortage which a week ago threatened to curtail drilling activities has been provided by digging several shallow wells. A pond some distance from the site had been pumped dry and two nearby wells which had been supplementing water from the pond were unable to supply the three 375-horsepower steam boilers.



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ARKANSAS FIELDS

Four Schuler tests at critical depths.

* * *

Columbia County wildcat seeking Permian lime oil.

El Dorado, Ark.—The Schuler field went without a completion last week while four of the tests drilled and cored at critical depths, three of them in the Permian lime below the lower Marine (Jones) sand.

Alice Sidney Oil Company's J. C. & D. S. Morgan 3, NW NE SE 18-18-17, was reaming down after coring dense and oolitic lime to 7649 feet. It cored saturated Jones sand. Lion Oil Refining Company's Edna Morgan B-4, NW SW SE 18-18-17 was coring Jones sand with oil saturation at 7544 feet, the core picking up the saturation at 7522 feet; elevation is 222 feet.

Phillips Petroleum Company's Justiss 2, Lot 6, NW 18-18-17, was coring in the Permian lime at 7640 feet and Marks 2, NEc Lot 2, SW 18-18-17, was coring lime at 7670 feet.

Eleven other tests are drilling and rigging up for deepening of two old tests was started last week.

Columbia Wildcat Drilling

Kerrlyn Oil Company's Barnett 1, SE SW NE 14-17-20, Columbia County, Arkansas, wildcat seeking Permian lime, was drilling red shale and sand at 7440 feet last Thursday without having picked up the big lime; elevation is 321 feet. Chief wildcat interest at present from an operating standpoint in South Arkansas is centered in this test.

Leasing continues in Columbia and LaFayette counties. Kerrlyn Oil Company has a shooting unit in Union County in Township 17, Range 13, and Amerada Petroleum Corporation has a unit shooting around the Schuler field. Phillips Petroleum Company has paid rentals on its leases at Snow Hill, Ouachita County, where first Permian lime production was found.

Root Petroleum Company is buying all of the production from the Schuler field except that owned by Lion Oil Refining Company. Root is connected to 17 wells and has a connection for half the production of another, purchasing 3146 barrels daily of which 878 barrels is sweet oil from 8 of the Travis Peak wells and 2268 barrels in sour oil from 9 wells and the half production from another.

Lion Oil Refining Company is connected to its own 9 wells and divides production with Root to the Morgan "A" lease, which has one well of sour oil, which Lion owns jointly with Phillips Petroleum Company. From its connections Lion gets 613 barrels daily of sweet oil from 3 Travis Peak wells and 1438 barrels from 4 wells of its own and the half from the Morgan "A" lease.

Six Permits

Six drilling permits were authorized last week by the Arkansas Board of Conservation, as follows: LaFayette County—L. E. Tennyson, Jr., L. E. Tennyson, Jr., 1, C 4.90 acre tract NE NE 13-16-23; Miller County—Gulf Refining Company, J. W. Hanner 1668 feet west and 370 feet north SEc 16-20-28; Mrs. S. O. Thompson, A. L. Treadway A-1, 330 south and 336.1 east NWc E½ NW SE NE 10-20-28; Texas-Canadian Oil Corporation, J. N. Thomas 3440 south and 374 west NEc NW SE 12-20-28; Union County—Phillips Petroleum Company, Marine 1330 south and 1650 west NEc 20-18-17; Texas Canadian Oil Corporation, N. M. Powledge 1330 south and west NEc NW NW 21-18-17.

El Dorado, Ark.—Standard Oil Company of Louisiana has ceased to purchase the Tokio sand low gravity asphaltic oil from Benedum & Trees Oil Company in the shallow Troy field, Nevada County. The production there from that horizon, all owned by this one company, is now being run to steel storage owned in the area by Standard Oil Company of Louisiana. It amounts to about 1250 barrels daily.

East Texas Refining Company has completed a 4-inch welded line from its gasoline plant in Section 14-20-28, Miller County, Arkansas, part of Rodessa to its loading rack in Section 10-23n-16w, Caddo Parish, Louisiana, in the Rodessa field. The output of the East Texas plant will be sold to Warren Petroleum Company of Tulsa, it is reported.

ARKANSAS Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
MILLER COUNTY (Rodessa)—		
Frank Loda, Treadway 1, 10-20-28..	768	6148
W. L. McClanahan, Capps C-1, 14-20-28	340	6048
J. R. Ostrom, Gerrald 1, 15-20-28..	25	6079
Roberts Bros., Capps 1, B-1, 10-20-28	960	6124

*Failures; †Junked; ¶Million cu. ft. gas.

SOUTHEASTERN STATES

Mississippi plans leasing coastal waters for development

Jackson, Miss.—A public hearing will be held in Jackson Tuesday night, January 25, on the proposed leasing by the Mississippi State Mineral Lease Commission on the water bottoms of Mississippi Sound, bays, marshlands, estuaries and tributaries for "oil, gas, sulphur and other minerals for exploration and development."

The Mississippi state senate recently adopted a resolution declaring that "it is the sense of this body that the said Mineral Lease Commission of the State of Mississippi, proceed at once to lease said property for development, according to law." No action will be taken on the leasing until after the hearing.

Some opposition has been voiced by some residents of the three counties, Hancock, Harrison and Jackson, to the leasing of the shallow water area.

Prolific southwest Eunice lime area probing erratic.

* * *

Well allowables reduced under new proration scheduled.

Hobbs.—Lea County recorded 8 new projects the past week, including 2 for the Vacuum lime area, which has 6 flowing wells and 5 additional operations.

Mid-month proration schedule for New Mexico retained the total allowable at 107,100 barrels daily, but slight reduction was made in prorated wells to compensate for new completions. Lea County wells prorated on a flat basis were cut 1 barrel to a new low of 64 barrels daily. The new schedule places a maximum of 68 barrels daily for wells in the Monument field.

Artesia district wells served by Trans-Pecos Pipe Line Company's system, which has since been acquired by the Texas-New Mexico Pipe Line Company, are allowed to produce a maximum of 150 barrels daily, and 17 wells are yielding this unusually large quota. Special production concession was granted Artesia district last spring to enable Trans-Pecos Pipe Line Company to fill an export contract held with the Italian government, with deliveries ranging from 3500 to 4000 barrels daily.

Prolific oil horizon in the southwest portion of the Eunice lime area, now one of the active drilling centers in the state is erratic. Texas Pacific Coal and Oil Company, largest lease owner in the immediate area, missed the big pay in drilling State 7-A, C NW NW 8-22s-36e, but is showing for a well at 3875 feet, or 265 feet sub-sea. This company's State 5-A, west offset, gauged 1187 barrels of oil in 1 hour natural at 3787 feet, or 177 feet sub-sea. Location has been made by the company to drill State 9-A, NW SW NE 7-22s-36e. Continental Oil Company has started operations on State 3-E-17, C NW NW 17-22s-36e. Both offset a big extension made recently by Cities Service Oil Company.

West flank of the junction point of the Monument and Eunice areas continues to yield large initial wells. Continental Oil Company et al's Reed 1-S-23, NE NE NE 23-20s-36e, averaged 68 barrels of 35 gravity oil hourly for 3 hours on ¾-inch choke after using 2000 gallons of acid at 3800-3858 feet. Elevation is 3568 feet.

Two new operating units have entered the Vacuum field. Ohio Oil Company's State-Warn 1, C SE NW 31-17s-35e, south offset to recent east extension completed by Skelly Oil Company, is rigging up. Geo. F. Getty, Inc.'s State 1-F, C NE NE 36-17s-34e, west offset to Magnolia Petroleum Company's State 1-H, is starting up. The latter has cemented 16-inch at 252 feet. Magnolia Petroleum Company has moved in a second heavy rig from East Texas to speed up its drilling program, and is setting up same on State 1-I. Seven-inch pipe has been cemented at 4315 feet on the company's State-Bridges 3.

Production from the 6 flowing wells in the Vacuum field is being stored in Magnolia Petroleum Company's 80,000-barrel tank, which contained 5704 barrels of oil early last week.

Another wildcat for the extreme east edge of Lea County has started up. Weiner et al's Parcell 1, near C SW NE 5-23s-38e, drilled to 221 feet with machine, and is slated to install a heavier rig. W. L. Todd, trustee's Leonard 1, southeast corner of Lea County, logged top of anhydrite at 1095 feet and first salt at 1255 feet, with an elevation of 2994 feet, and was drilling at 2420 feet. It centers upon a 2560-acre block.

The Langlie sandy-lime area added two new operations, including The Texas Company's Fristoe 3, NW SE NE 3-5s-37e, and Carl King et al's Stuart 2, NW NE NW 14-25s-37e.

North extension given the Cooper field has resulted in Republic Production Company making location for Davis 2, SW NE SW 34-23s-36e.

NEW MEXICO
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
LEA COUNTY (Cooper)—		
Atlantic-Kirby Pet. Co., Davis 1, sw nw sw 34-23s-36e	1848	3610
Barnsdall, Whitten 1, ne ne nw 4-24s-36e	440	3669
LEA COUNTY (Monument)—		
Continental et al, Reed 1-B-23, ne ne ne 23-20s-36e	3600	3858
LEA COUNTY (Penrose)—		
Humble, State 1-H, c sw sw 27-22s-37e	150	3670
Texas Co., Falby 2, c nw nw 8-22s-37e	70	3760
Two States Oil Co., Downes 1, c nw nw 5-22s-37e	500	3786
LEA COUNTY (Rhodes)—		
Texas Co. et al, Cagle 2, c sw sw 15-26s-37e	¶5.4	3216
LEA COUNTY (Vacuum)—		
Texas Co., State 1-M, c se nw 1-18s-34e	1200	4550

*Failures; †Junked; ¶Million cu. ft. gas.

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Kern County test nearing West Coast production depth.

* * *

Wilmington late developments leave area much in doubt.

* * *

Middle Dome test at Kettleman Hills is apparent failure.

Los Angeles.—Continental Oil Company's Kern County Land A-2, Section 8-27-24, in the Wasco area of Kern County, is nearing a record depth in California and has picked up a shale body with bottom at 12,530 feet. Operators feel there is a real chance to pick up an oil sand after passing out of the shale. The deepest well ever drilled in California was Superior Oil Company's K.C.L. 8, wildcat in the Ten Section area, which was bottomed at 12,618 feet when abandoned.

Geologists are of the opinion that the well has an extra good chance of securing production, if the hole can be drilled sufficiently deep. Last casing cemented was 7-inch at 11,570 feet. One other well in the Wasco area was drilled to 10,213 feet and shut down, pending this development.

CALIFORNIA Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
EL SEGUNDO—		
Richfield, McCray 2	900	7354
LONG BEACH—		
Richfield, Haas 19	200	3025
WILMINGTON—		
Bankline Oil Co., Watson Four 6..	125	3608
General, Channel C. 3	250	3190
Union Pacific, Offset 62	190	3455
Offset 76	325	3165
Royalty Serv. Corp., Keagy 1	140	3135
EL SEGUNDO—		
Howard Oil Co., Mary 1	*	7605
KETTLEMAN HILLS—		
Kettleman No. Dome Assn., No. 12 P-27	1250	8060
FRUITVALE—		
Pacific O&G Dev. Co., Fannuchi 1..	225	3017
GREELEY—		
Standard, K.C.L. 11-8A	350	7846
K.C.L. 11-11	600	7810
K.C.L. 17-1	*	8500
MIDWAY-SUNSET—		
Signal O&G Co., Kendon 4	300	2346
ROUND MOUNTAIN—		
Crestmont Oil Co., Staley 2	225	1780
Marcan Oil Co., No. 2	360	2031
D. G. Vedder, Bell 4	310	1836
SANTA MARIA VALLEY—		
Dougan Oil Co., Yelkin 1	1500	4690
Hancock-Bush, Hopkins 3	1500	4885
Union Bradley Lands 2	375	5017
EDISON—		
General, Osborn 1	*	3763
McVAN—		
Bargol Oil Co., Bargol 1	*	1234
KERN COUNTY—		
Continental, K.C.L. B-1	*	10,205
SANTA MARIA VALLEY—		
E. H. Moore, Union Sugar L-10	*	6343

*Failures; †Junked; ¶Million cu. ft. gas.

Just what is to happen at Wilmington in the new areas is a big question, with certain areas looking good and others looking bad. Superior Oil Company's Community 1960-1, near Armor Place and Eldorado street, was drilled to 4020 feet and plugged back to 3890 feet. String of 13⅜-inch was cemented at 2330 feet to protect the Ranger zone. Rumors from the field have it that close to 1000 feet of oil sand has been cored, and if the sand is as rich as reported, the well should be a prolific one. Production test is due in a few days.

But the other side of the story is that apparently there is a faulted condition which may condemn a large part of the new area. This means that the Ranger productive zone may be far better and cover a much larger area than the Terminal Zone.

Pure Oil Company's S. P. 1, Section 31-18-17, wildcat in the Huron area of Fresno County, has been drilled to 10,220 feet and will make a drill-stem test shortly. Should this test not be up to expectations, there is a chance the hole will be abandoned. Last casing cemented was 13⅜-inch landed at 1705 feet.

In the Greeley district in Kern County, Superior Oil Company's K.C.L. 9, Section 3-30-26, total depth 7870 feet, is being redrilled. Last October, this well was placed on production with bottom at 7605 feet, making 850 barrels of gravity clean oil, but soon quit producing. Before the actual test, a drill-stem test showed the well to be good for 1500 barrels of oil. Should it develop real and sustained production, the field will be extended, but the offsetting acreage is held in large bodies by important companies.

Much interest is attached to the test to be made soon of Petroleum Securities Company's Rembush 1, Section 35-10-34, outpost for the Santa Maria Valley field. Hole was drilled to 5431 feet and 8⅝-inch landed at 5160 feet, and will be tested on the pump. Santa Maria Valley is one of the busiest in the state, but the field is spotted. It may require several months to prove limits of the field.

Santa Fe Deep Hole Still Testing

Santa Fe Springs' deep test, Union Oil Company's Bell 100, with bottom at 11,314 feet, which refused to flow after swabbing for several days, has been cleaned out to bottom and 2½-inch tubing is to be run for another production test. In this hole, 3½-inch was cemented at 11,215 feet. There are 99 feet of open hole at bottom and officials of the company feel that they have cored sufficient oil sand to make a well, but so far swabbing has failed to develop production. During the last few days of drilling in this hole, considerable weighting material was used and it is possible the last 99 feet of the hole was mudded off. The next test probably will be the last.

In the Middle Dome of Kettleman Hills, Temblor Oil Company's Bunting 1, Section 25-23-19, total depth 9138 feet, is not looking good. Last casing was 6⅝-inch landed at 8050 feet, which was tested with 1000 feet of 4¾-inch liner cemented at 8960 feet and 188 feet of 3-inch liner on bottom. The test showed gas-cut mud and salt water. The hole will now be tested higher up by stages. It is possible the showings in the brown shale may be productive.

Two outposts at Round Mountain in Kern County have been abandoned. Petroleum Securities Company's Coffee 6, located 100 feet north and 100 west from SEc SW SW 1-28-28, was drilled to 2200 feet and the Vedder zone was found to be wet and barren. Harry R. Long's No. 1, outpost test located 100 feet north and 200 feet west from SEc 2-28-28, has been abandoned with bottom at 1961 feet. Top of Vedder zone was picked up at 1906 feet.

The west side of the Montebello field probably will see a number of wells drilled in 1938. St. Helens Petroleum Company's Monterey 20, Miocene discovery, is averaging 765 barrels of 40-gravity clean oil with a gas production of 6,250,000 cubic feet through ¾-inch choke. Pressures are 1100 pounds on tubing and 1400 pounds on casing. The company is starting Monterey 24, located 120 feet west and 50 feet north from the discovery well. Pongratz Oil Company has staked location for its first test of the new zone 700 feet southwest of Monterey 21, and will be the first to start a test seeking the new zone.

Government offers part in fast tanker program

Washington.—American oil companies which operate tankers were asked this week to advise the United States Maritime Commission by February 1 whether they desire any of the 12 fast tankers which are to be built under an agreement between the commission and Standard Oil Company of New Jersey to meet the immediate needs of the Navy for auxiliary vessels of this type.

Under the agreement, Standard Oil Company will build the tankers and the government will pay, as part of the national defense program, the increased cost of equipping them with high speed and other facilities necessary to make them quickly convertible into auxiliary vessels capable of accompanying the fleet in time of war.

Contracts for the construction of the tankers, which will cost $37,556,000, already have been let in lots of three to four yards. The cost to the government of the national defense features to be incorporated in the vessels is placed at $10,563,000.

MICHIGAN FIELDS

Three deep tests underway in as many Michigan counties.

* * *

Secord Township prospective field has second failure.

Mt. Pleasant, Mich.—Michigan had three active deep tests this week, 2 drilling salt in uncertain formations, and the third with 599 feet of 14-inch drive pipe in but not landed.

Mammoth Producing & Refining Corporation's Oard 1, Section 25-18n-1w, Buckeye Township, Gladwin County, on the southeast flank of prolific Dundee lime production, is drilling at 4330 feet in salt, presumably the lower Monroe or Sylvania limestone. Last casing (5-inch) was set at 4045 feet.

Not as deep in actual footage but drilling in formations of the same age, is Muskegon Development Company's Ichenberg 1, Section 7-16n-11w, Barton Township, Newaygo County, now at 3795 feet, also in salt. Last casing string here was set at 3726 feet.

Fourteen-inch drive casing probably will be successfully landed this week by Socony Vacuum Oil Company in Hansen 1, Section 22-12n-6w, Montcalm County, with 599 feet in on January 18 and not more than 50 feet more expected to find a seat at base of glacial drift.

Secord Township Failure

All of the 3 projected deep tests are being drilled with cable tools.

Interest in the Secord Township (19n-1e) sector of Gladwin County, 11 miles northeast of the Buckeye field, cooled considerably this week in the wake of the second failure to follow the discovery well. Latest failure is M. F. Whitehill's Taylor 1, Section 11-19n-1e, north offset to the discovery Dundee producer. With Dundee lime at 3388 feet, this test bottomed out in water at 3457 feet and will abandon. Previously a failure was drilled three locations north and the same distance east of the discovery.

Reports from Daily Crude Oil Company's Caplan 1, Section 10-19n-1e, a mile west of the Bosley discovery, and in the center of a 5000-acre Sun Oil Company and Mammoth Oil Company controlled block, are none too encouraging. Upper beds were reported as much as 40 feet off in correlation with the discovery. It is drilling at 2235 feet in the Sunburry.

Interest in the Bentley Township (17n-2e) district, 7 miles southeast of Buckeye, however, is standing up. Seven tests are drilling, 3 producing, and 5 rigs being constructed.

A fourth commercial Traverse lime producer (1350 feet) appeared likely this week for Trowbridge Township (1n-13w), Allegan County, when Gladstone Oil & Gas Company's Emmons 1, Section 28, a half-mile west of a small Traverse well, showed free oil and gas in the Upper Traverse. It is under test.

Gulf Oil Corporation appeared to have secured an effective plug-back from bottom-hole water at 2956 feet and was preparing to acidize with 1000 gallons this week on Marston 1, Section 1-14n-4e, Monitor Township, Bay County. Hole is now plugged back to 2933 feet with 1800 feet of oil in 5-3/16-inch casing.

Stork Oil & Gas Company probably will abandon Century 1, Section 9-17n-3e, Mt. Forest Township, Bay County, after shutting down at 3283 feet in Dundee water.

Interest in Sheridan Township (19n-2e) Gladwin County (it adjoins Secord on the east) was backed by Michigan operators in Lansing last week at the January state lease auction. The 5043 acres sold in Sheridan brought an average price $6.38 per acre with a high bid of $13.75 per acre. A total of 9589 acres was purchased by operators who paid bonuses totaling $41,304, reported a record price for wildcat acreage in Michigan. Mammoth Producing & Refining Corporation, Sun Oil Company and Wicklund Development Company were the chief buyers.

MICHIGAN

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CLARE COUNTY—		
Sun, Weldon 1, ne ne se 14-19n-3w.	*	3920
CRAWFORD COUNTY—		
Dome Oil Co., Lindgren 1, nw sw sw 33-25n-3w	*	3454
GLADWIN COUNTY—		
Sun, Card 5, ne sw nw 10-18n-1w..	210	3666
Ralph LeBlanc, Campbell 2, se se ne 12-18n-1w	65	3618
Garfield Pet. Co., Fee 3, c s½ sw ne 14-18n-1w	75	3620
E. S. Beaver, Woodring 3, se se se 23-18n-1w	360	3598
Gordon Oil Co., State D-3, nw ne nw 35-18n-1w	75	3587
ISABELLA COUNTY—		
Cryden & Rowmor, Smith 1, sw se ne 35-15n-5w	*	3733
Pure, Embrey 4, sw sw sw 34-15n-6w	215	3624
OGEMAW COUNTY—		
T. F. Caldwell, Roma 4, se nw nw 6-21n-3e	40	2604
M. L. Jorgenson, Heintz 2, nw nw ne 24-22n-1e	49	2782
Weber Oil Co., Fisher 2, sw sw nw 35-22n-2e	45	2655
ST. CLAIR COUNTY—		
Great Basin Oil Co., Ferguson 1, se ne se 17-7n-17e	*	822

*Failures; †Junked; ¶Million cu. ft. gas.

★

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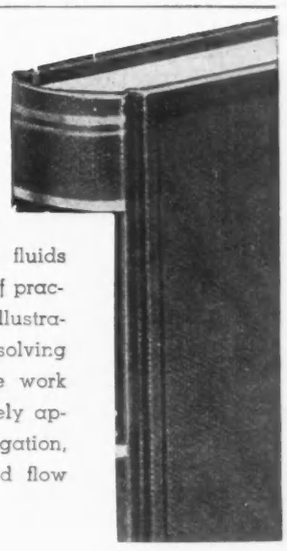

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IMPORTANT WILDCAT TESTS

ALABAMA

CHOCTAW COUNTY—Joe Modisett et al's McCorvey 1, se sw sw 20-9n-2w, elev 120 ft, owdd, td 7520 ft.

GREENE COUNTY—Greene County Dev. Co.'s R. C. Lett 2, se nw 5-21n-2e, sd 115 ft.

HOUSTON COUNTY—Rice O&G Co.'s Oakley Est. 2, se nw sw 9-3n-29e, sd 4975 ft.

MOBILE COUNTY—Grand Bayou O&G Co.'s J. A. Stafford 1, sw sw 24-7s-3w, lcn. J. C. Prine's King 2, ne ne 4-1n-4w, elev 135 ft, 10-in csg 300 ft, arr set 8-in csg td 1100 ft (1100 ft s of No. 1).

ARKANSAS

CLAY COUNTY—Canadian American Oil Co.'s Smith 1, c ne nw 9-20-8, top Nacatosh 800 ft, sd 1005 ft, shale.

CRITTENDEN COUNTY—Manning & Martin, Inc.'s Cartwright 1, se nw sw 16-7n-8e, sd 3500 ft.

COLUMBIA COUNTY—Kerrlynn Oil Co.'s Barnett 1, se sw ne 14-17-20, elev 321 ft, dr 7330 ft, red shale. Standard of La.'s D. E. Thomas 1, nw se 8-16-22, mim; Bodcaw Lbr. Co. 1, c se ne 18-16-22, mim.

DREW COUNTY—Sloan, Wells et al's Hardy 1, sec nw 3-14-7, ru and sd.

HEMPSTEAD COUNTY—Easton, May & Murdock's R. M. LaGrone 1, ne ne 5-12-26, sdtr 2944 ft.

LA FAYETTE COUNTY—Lyons & Neely's Lillian Taubel 1 (Tatum Fee), c se nw 18-16-22, woc 10¾ in csg 2004 ft. L. E. Tennipon, Jr.'s Fee 1, ne ne 13-16-23, lcn.

MILLER COUNTY—F. F. Earles' General American 1, sec sw 20-14-26, rur. Hearell & Burnett's Willie Wallace 1, se nw se 7-20-27, lcn.

OUACHITA COUNTY—A. H. Tarver et al's Dean 1, c nw sw se 16-14-19, elev 246 ft, Nacatosh 1304-21 ft, top Meekin sand 1827 ft, pb to Nacatosh to test so, pb old td 2225 ft Tokio. O. F. Whittaker's C. C. Guttry 2, sw se nw 21-15-19, cored broken sand 2146-2208 ft, 300 ft oih, wosr, td 2208 ft.

CALIFORNIA

FRESNO COUNTY

CLOVIS—Central Valley Oil Co.'s No. 1, 1-12-30, dr shale 363 ft.

JACALITOS CREEK—Dauphin Dev. Co.'s Boone 1, 20-21-14, dr shale 3603 ft.

PANOCHE—J. C. Gautier's Hubbard 1, 12-14-11, sd 510 ft.

COALINGA—F. C. Grimes' No. 1, 12-20-15, td 515 ft, technical spud.

JACALITOS HILLS—Jacalitos Pet. Co.'s Associated 1, 14-21-15, td 5750 ft, sidetracking fish.

GUIJARRAL HILLS—Petroleum Securities Co.'s Gatchell 2, 18-20-16, dr shale 3866 ft. Pure Oil Co.'s S.P. 1, 31-18-17, td 10,219 ft, to test.

CIERVO—Superior's No. 1, 20-16-13, dr shale 2350 ft.

TRANQUILITY—Union's Nicholson 1, 17-15-15, dr shale streaks sand 5960 ft.

CANTUA CREEK—Western Gulf's S. P. Land 4, 3-17-15, dr shale 5476 ft.

KERN COUNTY

DEVIL'S DEN—Amerada's Beer 5, 22-26-19, dr brown shale and sand 6250 ft. Den Pet. Co.'s Bates 1, 20-25-19, sd 4716 ft. Little Major Oil Co.'s Jester 1, 36-25-18, sd 140 ft.

CUYAMA VALLEY—Calif. Prod. Co.'s Job 1, 6-10-34, dr shale 1000 ft.

FRUITVALE—Calif. Western Oil Co.'s K. C. L. 1, 14-29-27, dr gray sand 3100 ft. Shell Oil Co.'s No. A-58, 29-29-27, lcn.

BELRIDGE—Chico-Martinez Oil Co.'s Exeter 1, 1-29-20, dr shale 799 ft. General's St. Helens 1, 12-28-20, td 6004 ft, fsg. Ohio's Ford 1, 6-29-22, sd 2027 ft.

WASCO—Continental's K.C.L. A-2, 8-27-24, dr gray sand 12,380 ft. Seaboard Oil-Tide Water Associated's K.C.L. C-1, 26-27-24, sd 10,213 ft.

ROSEDALE—Continental's K.C.L. B-1, 12-29-26, td 10,205 ft, redr to 9635 ft, abn; K.C.L. D-1, 10-30-26, rur.

ARVIN—General's Pauley 1, 22-31-29, sd 500 ft. Petrex Inc.'s No. 1, 32-31-30, sd 3150 ft. Union's Berry 1, 16-31-29, rig.

McVAN—Golden Bear Oil Co.'s Siemon 3, 10-27-27, lcn.

GRAPEVINE—Honolulu Oil Corp.'s Honolulu-Associated 33-1, 33-12-19, dr shale 6563 ft. Ohio's T.R.C. D-2, 23-11-19, dr shale 5831 ft. Petrol Corp.'s Reserve-Petrol 32-2, 32-11-19, dr shale 2437 ft. Universal Cons. Oil Co.'s Tejon 1, 33-11-19, td 4450 ft, pumping 40 bbls 23 gravity oil.

MOUNT POSO—Johnston Dr. Co.'s No. K-1, 30-27-29, rur.

CALIENTE CREEK—G. W. Johnson's No. 1, 33-29-30, sd 750 ft.

McKITTRICK—Par-Mer Oil Co.'s Par-Mer 1, 6-31-22, sd 2150 ft. Rocima Oil Co.'s No. 1, 20-30-22, dr shale 2702 ft.

ROUND MOUNTAIN—Petroleum Securities Co.'s Coffee 6, 1-28-28, spud 1'12, dr shale 1832 ft. Richfield's Olcese 1, 17-28-29, dr shale 1381 ft. Shell's Olcese-Lilly 2, 21-28-29, td 1905 ft, plug 1597 ft, co.

KERN FRONT—A. J. Rubinstein's Lillian-Kelly 2 (formerly Deep Zone Oil Co.) 20-28-27, spud 1/7, dr shale 2670 ft. Vernon & Wheeden's Robinson 1, 28-28-27, sd 2540 ft.

McFARLAND—Shell's Keystone 1, 4-26-27, dr gray sand 3050 ft.

STRAND—Shell's K.C.L. A-72, 14-30-25, td 8036 ft, twisted off dr pipe, to redr.

SAN EMIDIO—Shell's No. 4-26, 26-11-22, dr gray sand 5822 ft.

TEN SECTION—Standard's K.C.L. 15-1, 28-30-26, td 8813 ft, production test, good for 950 bbls.

SEMITROPIC—Standard's Randolph Com. 2, 14-27-23, dr sand and shale 8820 ft.

GREELEY—Superior's K.C.L. 9, 3-30-26, td 7870 ft, to redr.

SOUTH MARICOPA—Texas Co.'s Pioneer 1, 33-11-23, dr gray sand 6718 ft.

MISCELLANEOUS

GLENN COUNTY—Ohio's Willard 1, 18-20-2, td 4505 ft, well blew out, lost derrick and equip. in crater, estimated 75,000,000 cu ft gas, sanded up.

HUMBOLDT COUNTY—Texas Co.'s Eureka 2, 22-3-1, td 7708 ft, gas well, plug 5737 ft, shut in.

KINGS COUNTY—C. C. Friend's No. 1, 17-22-19, dr sand 50 ft. Pyramid Prod. Co.'s Retherford 1, 27-24-18, dr shale 1540 ft.

MERCED COUNTY—Amerada's Carano 1, 19-10-11, dr shale and sand 7868 ft.

SAN JOAQUIN COUNTY—Standard's Weil-Zuckerman 2, 25-2-4, dr gray sand 7663 ft.

SAN MATEO COUNTY—Bergman Oil Co.'s No. 1 (Half Moon Bay), 10-6-5, lcn. Wilshire Oil Co.'s Cowell 1 (Half Moon Bay), 20-6-5, dr shale 6500 ft.

SOLANO COUNTY—Amerada's Detering 1, 36-4-2, td 4457 ft, plug 4038 ft, to reperforate and test; McCormack 1, 1-3-2, foundation. Tracy Dr. Co.'s Hanson 2, 36-4-2, td 4380 ft, recompleted for 40,000,000 cu ft gas, shut in.

TULARE COUNTY—Crusader Oil Co.'s No. 1, 1-24-27, rur. Magnet Oil Co.'s A.O.G. 3, 29-24-24, sd 7555 ft. Standard's Morris 1, 36-24-23, td 11,440 ft, stuck dr pipe, to sidetrack.

SANTA BARBARA COUNTY—Ben Moyle's Arrata 1, 9-8-32, sd 3286 ft.

MONTEREY COUNTY—Elba Oil Co.'s Elba 1, 6-12-1, sd 4021 ft; Elba 2, rig.

SAN LUIS OBISPO COUNTY—Ajax Pet. Co.'s No. 1, 27-26-13, setting boilers. Cholame Synd.'s Jack 2, 10-25-15, sd 3641 ft.

SANTA BARBARA COUNTY—E. C. Arnold's Arnold-Apache 2, 8-8-33, td 6370 ft, co. Carpinteria Oil Co.'s No. 1, 34-4-2, rigged up and idle. O. C. Field's Santa Rita 1, 11-7-33, td 3358 ft, co. Pima Oil Co.'s Marganti 1, 13-9-35, dr shale 1650 ft, showing oil. Standard's Los Flores Land 1, 27-9-33, td 3830 ft, plug 3515 ft, to redr. A. E. Tweedy's No. 1, 34-5-31, dr shale 1531 ft. United Western Oil Co.'s No. 1, 16-7-30, sd 1032 ft. Wilshire Oil Co.'s Hollister 1, 35-5-33, td 210 ft, set 11¾ in on bottom.

VENTURA COUNTY—General et al's No. 1, 15-1-22, dr shale 2690 ft. Oxnard Oil Co.'s Vanoni 1 (Oxnard), 10-1-22, td 6302 ft, plug 6200 ft, tested for water and trace of oil, removing equip. Richfield's McFarland 1 (Camarillo), 13-2-21, dr shale 7776 ft. Texas Co.'s Rancho Santa Clara 1 (Camarillo Area), td 5878 ft, from Monterey 5180 ft, tested good for 1,000,000 cu ft gas, and spots oil. Vaca Explor. Co.'s Lennox 1 (Oxnard), 6-1-21, td 2885 ft, pumping 280 bbls, 11 gravity clean oil.

SOUTHERN CALIFORNIA

WILMINGTON AREA—Alford Dev. Co.'s Class. Yards 3, 22-4-13, sd 6385 ft, may abn.

PALMDALE — Antelope Valley Pet. Co.'s No. 1, 17-6-12, rur.

NEWHALL—Barnsdall's Rancho San Francisco 2, 26-4-17, td 6430 ft, on test recovered four stands of gassey mud, may dr deeper. Towsley Canyon Oil Co.'s Hammond 1, 8-3-16, td 4220 ft, co to 4050 ft, to replug to test by stages. West Coast Dev. Corp.'s Newhall Land 1, 27-4-16, sd 1295 ft.

PICO CANYON—Downey Oil Corp.'s No. 1, 36-4-17, sd 2550 ft.

PALOS VERDES—Hunter-Devlin & Associates' No. 1, 17-4-14, sd 5502 ft.

TICK CANYON—Mint Canyon Pet. Co.'s Jennings 1, 35-5-14, sd 734 ft.

MONTEREY PARK—W. E. Ramsey et al's Garvey 1, 27-1-12, sd 3507 ft.

PALOS VERDES HILLS — Rolling Hills Pet. Co.'s Palos Verdes 1, 27-4-14, dr shale 2866 ft.

CASTIAC — Royal Lands Corp.'s Ramona Hills 1, 8-4-17, td 330 ft, hole caving.

GARDENA—Texas Co.'s Gardena Com. 5-1, 30-3-13, dr sandy shale 6214 ft.

SAN BERNARDINO COUNTY — Selegna Dr. & Prod. Co.'s Abacherli 3, 12-3-8 (Chino), dr shale streaks sand 2260 ft.

FLORIDA

LAKE COUNTY—Oil Dev. Co. of Fla's Gulf Expl. Co. 2, se se 17-24s-25e, elev 120 ft, arr retest 2600 ft, old td 6126 ft.

LEVY COUNTY—Fla. Oil Discovery Co.'s Sholtz 2, sw sw ne 9-15s-13e, sd repr drawworks 2275 ft lime.

NASSAU COUNTY—St. Mary's River Oil Corp.'s Hilliard Turpentine Co. 1, nw ne se 19-4n-24e, elev 110 ft, dr 3972 ft, shale & lime.

SUWANEE COUNTY—Wm. G. Blanchard's Lucy Cotton 1, se ne 35-3s-11e, elev 70 ft, sd for heavier rig 200 ft.

ABBREVIATIONS

The following abbreviations, signs, etc., are used in completions and wildcat reports in THE OIL WEEKLY.

*—*dry hole abandoned well.*
‡—*salt water (completions).*
†—*junked and abandoned.*
¶—*million feet of gas.*
abd—*abondoned.*
bbls—*barrels.*
br—*building rig.*
b.s.—*basic sediment.*
csg—*casing.*
co—*cleaning out.*
dd—*drilling deeper.*
dk—*derrick.*
dr—*drilling.*
fsg—*fishing.*
ft—*feet.*
hfw—*hole full of water.*
in—*inches.*
lcn—*location.*
m—*milling.*
mim—*moving in materials.*
mit—*moving in tools.*
mot—*milling on tools.*
n, s, e, w—*north, south, east, west.*
oih—*oil in hole.*
owdd—*old well drilling deeper*
owpb—*old well plugging back.*
pb—*plugged back or plugging back.*
r—*reaming.*
rog—*rig on the ground.*
rur—*rigging up rotary tools.*
rust—*rigging up standard tools.*
sd—*shut down.*
sdtr—*sidetracking.*
sg—*show gas.*
si—*shut in.*
so—*show oil.*
so&g—*show oil and gas.*
spd—*spudding.*
sr—*straight reaming.*
sw—*salt water.*
td—*total depth.*
ur—*underreaming.*
wih—*water in the hole.*
wo—*workover.*
wocs—*waiting on cement to set.*
wosr—*waiting on standard rig.*

Mexico offers northern concession of 400,000 acres

One of Mexico's largest oil concessions, that covering nearly 400,000 acres in the La Calabaza and Peyotes zones, Juarez municipality, Coahuila state, held by the Milmo family, northern Mexico capitalists, is to be offered for sale at public auction for the second time January 24 in the National Palace at Mexico City by the ministry of finance. The asking price is 69,719.67 pesos (some $19,400).

ILLINOIS

BOND COUNTY—Universal Wells Serv Co. et al's Molder 1, nw nw nw 24-6n-4w, sd 2045 ft. A. T. Whitehead et al's Pollan 1, nw se sw 26-6n-2w, sd 2633 ft. W. C. McBride's Butler 1, nw sw se 30-4n-2w, dr 67 ft.

CLAY COUNTY—Shelby O. & G. Co.'s Knodacker 1, nw se sw 23-3n-7e sd 2933 ft. J. E. Milburn's Striegle 1, se nw ne 19-3n-8e, dk. Bonnie Oil Co.'s Schnautz 1, se sw ne 31-4n-8e, cor 3036 ft. Olson Drlg. Co.'s (was Wiser Oil Co. et al) Irwin Est. 1, c n½ se nw 12-2n-7e, td 3076 ft. Aw/1000 gals, fsg swb line. J. V. Wicklund's McCauley 1-A, ne sw nw 7-2n-9e, dk. Campbell et al's Walter Henderson 1, c n½ ne ne 7-4n-7e, cellar and pits. Carter's Cox 1, c e½ se sw 14-4n-5e, dk. Bonnie Oil Co.'s Walker 1, se se nw 21-4n-8e, mi rot.

CLINTON COUNTY—R. E. Dalton's Clifton 1, ne sw sw 15-1n-4w, dr 500 ft. Ellzy et al's Williams 1, sw nw sw 1-3n-1w, dk. Schlosberg & Siegel's Monken 1, ne sw sw 4-2n-1w, fsg 1350 ft. Watkins & Wright's William Wise 1, nw nw se 24-1n-3w, mim. Phelps et al's Gubser 1, c w½ w½ nw 4-3n-2w, dr 300 ft. Holley & Willis' Hughes 1, c n½ ne nw 18-3n-2w, mim. Noll & Max Conrey's Chas. Barth 1, nw se sw 12-1n-1w, lcn.

COLES COUNTY—W. J. Miller et al's Tomberlin 1, se se se 21-11n-10e, spd & sd. Hughes' Swango 1, c sw ne 27-13n-9e, sd 450 ft.

CUMBERLAND COUNTY—Jolly-Hill-Stipes et al's Jenkins 1, se ne ne 30-10n-9e, dr 2125 ft; to ur 6-in csg. Chas. Kapschuell's Oakley 1, sw ne sw 34-10n-8e, mi rot tools.

EDWARDS COUNTY—Cotton & Laller's Hays 1, ne ne ne 4-1s-10e, lcn.

EFFINGHAM COUNTY—Kingwood & Carter's Bartel 1, c e½ ne nw 26-6n-5e, td 4102 ft; testing. Samuel Hollis et al's Harrman 1, nw se sw 32-8n-6e, td 2671 ft, rust. Kingwood et al's McWhorter 1, c e½ se nw 15-6n-6e, dk.

FAYETTE COUNTY—Carter's Miller 1, c w½ nw nw 12-8n-3e, td 3170 ft; to pb. John Farrely's Lilly 1, se sw se 16-8n-3e, ur 8-in csg 1130 ft. Carter's Clow 1, c e½ sw ne 15-8n-3e, td 1508 ft; making 37 gravity oil, comp. Wilson & Stokes' Fee 1, nw sw ne 14-8n-3e, mach. W. B. Greer's Metzger 1, c n½ ne nw 19-5n-2e, sp, sd. Ryan & Redgraves' Jones 1, c s½ ne 24-9n-1e, dr 195 ft.

FRANKLIN COUNTY—Robert Markham's Whittington 1, c e½ sw se 18-5s-3e, cor 2811 ft. Washburn Pet. Corp.'s Neil 1, c e½ se se 6-5s-4e, dr 1830 ft.

GREENE COUNTY—M. V. Yeager's Robinson 1, se sw nw 17-10n-11w, dr 1800 ft.

HAMILTON COUNTY—Carpenter et al's Clark 1-A, nw nw sw 32-3s-5e, td 1000 ft, to dd.

JACKSON COUNTY—Stanolind's Leiner 1, se se nw 20-7s-4w, dr 350 ft.

JASPER COUNTY—C. R. Obermeyer's Atkins 1, nw nw ne 3-6n-9e, sd. Hoffman et al's King 1, sw nw nw 20-8n-10e, dr 3035 ft.

JEFFERSON COUNTY—Sturbois & Tomberlin's Osborne 1, cnw se 8-2s-2e, dk. Nollem & Benoist's Kelley 1, ne nw ne 25-4s-2e, sd 2218 ft. E. L. Dee's (was Chas. Kapschuell) Hamilton 1, ne sw nw 20-4s-3e, td 2911 ft, may skid rig. Sturbois & Tomberlin's J. B. Morris 1, nw nw sw 6-2s-2e, dk. Benedum & Trees' Arthur Owen 1, nw se sw 23-4s-3e, coring 2934 ft. Myers Bros.' Duckworth 1, c e½ sw ne 33-4s-4e, rig. A. H. Carpenter et al's Skinner 1, sw nw ne 36-4s-2e, mim. E. L. Dee and Folts' Hamilton 2, sw sw nw 20-4s-3e, lcn.

MARION COUNTY—Dee & Jordan's (was Siegel & Schlosberg) Roddy 1, sw se sw 20-2n-3e, sd 2182 ft. Marion Oil Co.'s Wilson 1, ne ne se 18-3n-3e, dr 1366 ft. Hackman & Harris' Britt 1, nw nw nw 36-4n-1e, sd 1050 ft. Mahutske Oil Co.'s Nichols 1, se sw se 12-4n-4e, sd 2809 ft. Alexander et al's Pope 1, ne ne ne 26-3n-1w, abn 1494 ft. W. C. McBride's Clow 1, sw sw se 29-2n-1e, dr 1180 ft. Helmerich & Payne's Stephens 1, sw sw sw 35-3n-4e, spd, sd. Valeira Oil Co.'s Schreurer 1, se se ne 12-4n-1e, abn 1900 ft. R. E. Dalton's Ira Dalton 1, nw se ne 19-1n-3e, br.

MASSAC COUNTY—Kahle et al's Harvick 1, sw sw sw 23-14s-3e, dr 2850 ft.

MONTGOMERY COUNTY — Schlosberg & Siegel's Nieman 1, c se sw 29-8n-5w, sd 811 ft.

POPE COUNTY—C. C. Whitlock et al's Anthis 1, nw nw ne 12-11s-5e, sd 1352 ft.

RANDOLPH COUNTY—W. A. Delaney and J. E. Mabee's Wilson 1, c e½ se ne 3-4s-5w, dr 3190 ft. Pioneer O&G Co.'s Johnie 1, se nw nw 28-6s-6w, sd 552 ft. Bremen O&G Co.'s R. Wilson 1, se se se 22-6s-6w, lcn.

RICHLAND COUNTY — Mammoth P&R Co.'s McCauley 1, sw se nw 28-3n-9e, co 3146 ft. Sam Raitman's Richey 1, c ne nw 12-4n-14w, lcn abd. Ray & Alford's Franklin 1, nw nw ne 34-5n-10e, dk. Parker et al's Berry 1, se sw ne 22-2n-14w, spd, sd. Papoose Oil Co.'s Lynch 1, c ne nw ne 5-3n-10e, spd, sd. Bur-Kan Oil Co.'s Allen 1, c sw nw 27-4n-10e, td 3045 ft, rng 7-in csg, to test.

SALINE COUNTY—Will Rogers et al's Saylor 1, se se se 3-10s-6e, sd 1125 ft. C. F. Bolton's Beagle 1, nw nw ne 13-9s-7e, dr 1056 ft.

SCOTT COUNTY—Gregory & Machling et al's Foltz 1, nw sw ne 31-14n-14w, sd 1196 ft.

SHELBY COUNTY—E. Breaseale et al's Richardson 1, c nw nw 35-12n-14w, dr 198 ft. Ray Farrior's Fritz 1, ne ne ne 1-12n-2e, lcn.

WABASH COUNTY—Martin et al's W. R. Wood 1, ne se nw 31-1n-12w, dr 1370 ft. Deck & Hays' Provident Mutual Life Ins. Co. 1, c se nw 25-1s-13w, abn 2635 ft.

WARDS COUNTY—Dr. W. F. Schmidt's Strenne 1, ne nw ne 5-1n-14w, spd, sd. Leach Bros.' Lee 1, sw ne se 11-1s-10e, ur 6-in csg 2905 ft. Harry Cotton's Leibke 1, ne ne sw 20-1n-14w, cellar. Cotton & Laller's Hays 1, ne ne ne 4-1n-10e, lcn.

WASHINGTON COUNTY—Silvers et al's Paul 1, nw nw se 29-3s-5w, spd, sd. Bitterman et al's Jesse 1, c se ne 16-3s-2w, mit.

WAYNE COUNTY—Gordon et al's Taylor 1, c nw sw sw 15-1n-7e, mim. Texas Co.'s Silverman 1, c e½ sw nw 16-3s-7e, td 3287 ft, Aw/2000 gals, wo acid.

WHITE COUNTY—Heldt et al's C. B. Dagley 1, sw ne sw 12-7s-9e, pits.

WILLIAMSON COUNTY—Edward C. Snyder's Flemming 1, c se ne 9-10s-2e, mim.

KANSAS

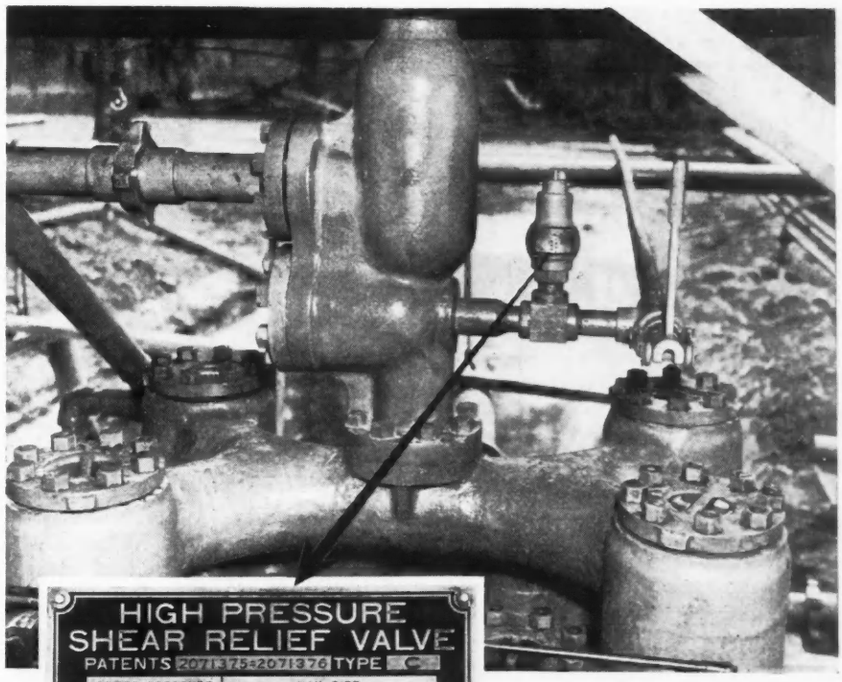
BARBER COUNTY—Palmer Oil Corp. et al's Warwick 1, c nw 29-31s-10w, ru, sd. Kansan Oil Corp.'s Mease 1, ne se se 27-30s-11w, sd 4910 ft. Helmerich & Payne's Winter 1, nw nw sw 16-32s-10w, td 4770 ft.

BARTON COUNTY—C. L. Price et al's Hammeke 1, ne ne sw 12-18s-12w, bailing. Martin & Foraker et al's Dick 1, ne sw sw 31-19s-11w, sd. Shell's Ehrlich 1, sw sw sw 1-16s-14w, dd to 3296 ft, 2800 ft oih. Ash et al's Frees 1, nw nw nw 34-16s-11w, dr 3340 ft. R. E. Day et al's Feltes 1, se se ne 14-16s-12w, sd 1875 ft. Thayer Drlg. & Brouck's Soderstrom 1, se se nw 21-17s-13w, ur 6-in csg. Sinclair Prairie's Oeser 1, ne ne se 17-16s-11w, dr 2633 ft.

BUTLER COUNTY — Reeves & Kinnan's Heim 1, sw sw sw 5-29s-3w, dr 3785 ft. Steinbuchel et al's Fox 1, nw se ne 25-26s-3e, sd 1010 ft. T. S. Dustin's Miley 1, se nw ne 17-27s-5e, sd 395 ft.

CHASE COUNTY—T. D. Duffy's Leedy 1, ne nw nw 26-22s-9e, fsg 635 ft.

CHAUTAUQUA COUNTY—Harrison et al's



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Are Your Guarantee Against Mistakes in Setting the* SHEAR-RELIEF *Valve

The name-plate not only shows pressures at which each nail size shears . . . the nail gauge identifies the nail sizes. When the nail is sheared, thereby relieving excess pump pressure, the nail is the only damage . . . and it only takes a few minutes to reset with another nail.

ABERCROMBIE PUMP CO.
GULF BLDG. HOUSTON TEX.

SHEAR-RELIEF VALVE

Brown 1, ne se ne 19-34s-10e, sd 820 ft. I. W. Siegle's Temple 1, sw sw sw 31-32s-12e, sd 400 ft. Sooby et al's Davis 1, sw ne nw 29-33s-10e, sd 1504 ft.

CLARK COUNTY—Olson Oil Co.'s Lehman 1, se se sw 20-32s-21w, dr 5487 ft. Olson Oil Co. et al's Watkins 1, sw sw nw 23-32s-21w, td 6760 ft, no show.

COWLEY COUNTY—Earl Wakefield's Whitson 1, sw ne se 8-32s-4e, pb to 3292 ft, 25 bbls oil, 21 bbls wtr. Dickey Oil Co.'s Kansas G&E Co. 1, ne ne ne 22-34s-3e, sd 3347 ft. Roth & Faurot's Fry 1, nw sw sw 8-31s-3e, abn 2660 ft. Trees Oil & Talbott's McKinn 1, ne ne nw 16-31s-6e, dr 1410 ft. Arthur Brewer's McDaniels 1, sw sw sw 24-30s-4e, cel. Tom Palmer's Neimaller 1, ne ne ne 14-30s-4e, mim.

EDWARDS COUNTY—Douglas & Gear's Meade 1, se se nw 35-25s-16w, sd.

ELLIS COUNTY—P. G. Reynolds et al's Karlin 1, nw nw nw 13-12s-18w, set 6-in csg 3674 ft, woc. Skiles et al's Jensen 1, sw se ne 26-12s-18w, sd 2910 ft. Glimac Oil Co. et al's K. C. Life Ins. Co. 1, se sw nw 5-11s-18w, dr plug, 600 ft oih, 15 min, 3000 ft oih 14½ hrs. Colonial Oil Co.'s Hadley 1, se ne se 5-11s-18w, woc 128 ft. Bradley Oil Co.'s Jensen 1, nw nw se 36-11s-19w, show sulph wtr. C. L. Carlock's Heyle 1, se se nw 14-13s-16w, td 3440 ft. Continental's Baumrucker 1, ne ne sw 25-14s-16w, dr 3030 ft. Helmerich & Payne et al's Stebbins 1, nw nw se 7-13s-20w, dr 3598 ft. J. J. Muth's Penny 1, c nl ne se 29-14s-18w, sd 350 ft. Gen Mach & Tools Co.'s Jensen 1, sw se ne 26-12s-18w, abn 3711 ft. Witt & Sheridan et al's Hall 1, nw sw ne 1-12s-17w, lcn. Hays & Sackrider's Windholtz 1, ne ne ne 2-13s-16w, dr 825 ft.

ELLSWORTH COUNTY—Colonial Oil Co's Hogy 1, nw nw sw 16-16s-10w, ur 10-in csg 2155 ft. Ralph Wixon et al's Peterman 1, sw sw sw 28-17s-10w, sd 1920 ft. Cities Service et al's Schroeder 1, c nl nw 29-17s-9w, dr 2745 ft.

GRAHAM COUNTY—Continental and Cities Service's Trexler 1, c el w½ ne 15-9s-21w, lcn.

GRAY COUNTY—P. G. Reynolds' Watkins 1, c sw 32-28s-28w, rig.

GREENWOOD COUNTY — Whittaker & Johnson's Cannon 1, c el se nw 8-26s-13e, td 1504 ft, rng 5-in csg. John Nichols et al's Central Life 1, sw sw se 35-25s-12e, spd, sd.

HARPER COUNTY—Franklin Drlg. Co.'s Walts 1, ne ne sw 24-34s-6w, rur.

HARVEY COUNTY—Allison & Fitzwilliams et al's Hawks 1, se sw ne 16-24s-1w, abn 3675 ft. D & A. Nat'l Ref. Co.'s Brown Bros. 1, nw se ne 22-23s-2w, dr 2492 ft.

JACKSON COUNTY — Lemmick Oil Co.'s Marble Savings Bank 1, c ne ne 26-9s-14e, sd 510 ft.

JEWELL COUNTY—Hollingsworth Bros.' Wolfe 1, nw sw se 14-4s-8w, spd, sd.

LANE COUNTY—Phillips Pet. Co.'s John Dees 1, c se se 3-19s-30w, dr 3710 ft.

McPHERSON COUNTY—Clyde Pulse et al's Boesker 1, se se nw 29-20s-1w, rig. Boyle & Grossman's Diener 1, se se ne 35-19s-1w, dr 3460 ft. Carter's Hoglund 1, c w½ sw nw 8-17s-3w, Aw/2000 gals, after hed, swb 4 bbls oil and 4 bbls wtr per hr, 7 hrs. Phillips' Galle 1, nw nw ne 11-21s-2w, dr 3275 ft. Archer & Crane's Templin 1, nw sw se 32-17s-3w, sd 2200 ft.

MEADE COUNTY—Pacific Mid-West Oil Co.'s Rexford 1, ne se sw 8-30s-29w, sd 200 ft. Barnett et al's Adams 1, sw sw ne 22-34s-30w, rig.

NESS COUNTY—Jones & Lane's Page Milling Co. 1, se se nw 36-18s-26w, sd 3265 ft. Marshall Drlg. Co. et al's Anderson 1, sw sw nw 23-16s-24w, spd, sd. Trojan O&G Co.'s Moses 1, c sw nw 10-18s-25w, sd 500 ft. Continental's Olson 1, sw nw nw 5-18s-25w, td 4325 ft, 653 bbls oil, & wtr, comp.

PHILLIPS COUNTY—C. W. Davidson et al's Elliff 1, se ne ne 35-5s-18w, sd 600 ft.

PRATT COUNTY—Ohio Oil Co.'s Howell 1, c sw sw 21-29s-15w, dr 4470 ft.

RENO COUNTY—Sam Schneider et al's Kroecker 1, ne ne ne 12-22s-5w, dr 3977 ft. Carey et al's McPheeters 1, ne ne nw 22-26s-8w, dr 2920 ft. W. E. Witt et al's Fair 1, nw se se 4-22s-8w, td 3355 ft, small incr in oil. Choen et al's Teter 1, se se sw 3-23s-5w, ru, sd. Westgate-Greenland Oil Co. et al's Popp 1, sw sw ne 7-25s-4w, abn 4136 ft. McCole et al's Mathews 1, sw nw nw 15-24s-10w, rng 15-in csg 475 ft. Skelly, Kimmell & Stewart's Gorham 1, sw sw se 32-25s-10w, surface pipe.

RICE COUNTY—Skiles et al's Campbell 1, se se ne 28-19s-9w, 252 bbls oil, ur 5-in csg. Joe Aylward's Weihe 1, sw sw ne 23-18s-9w, dr 2745 ft. Price et al's Gemeinhardt 1, ne ne se 18-18s-10w, fsg 2230 ft. Western Kansas' Bailey 1, sw sw nw 19-20s-6w, dr 2435 ft.

ROOKS COUNTY—Producer Oil Co. et al's Ham 1, sw sw nw 25-7s-19w, co 330 ft. Graham et al's Fike 1, sw sw sw 9-9s-17w, td 3326 ft, sd. Witt & Sheridan et al's Morrison 1, nw se sw 29-10s-17w, rig. Elwell et al's Zimmerman 1, ne ne nw 15-9s-18w, rur. Colonial Oil Co. et al's Hancock Life 1, nw sw sw 21-10s-18w, rig.

RUSSELL COUNTY—Emrichs et al's Anderson 1, ne se sw 33-15s-11w, spd, sd. Jones & Shelbourne's Short 1, ne ne ne 12-15s-12w, abn 3338 ft. Phil-Han & Hinkle's Reinhardt 1, se se sw 19-14s-14w, td 3246 ft, 1095 bbls oil, 26 hrs. Shields et al's Rogg 1, nw nw sw 28-14s-13w, td 2922 ft, 1900 ft oih 1¾ hrs. Parks et al's Gorham Est. 1, sw nw ne 19-15s-15w, ru. Jones & Shelbourne et al's Kuhnle 1, se se nw 4-15s-12w, cel. Hess et al's Reinhardt 1, ne ne sw 36-12s-14w, dr 215 ft. F. Smith & Unruh's F. Stielow 1, nw nw nw 32-11s-14w, rig.

SEDGWICK COUNTY—I. W. Murfin et al's Martin 1, se se nw 18-28s-1e, swb 45 bbls oil, 24 hrs. W. C. Talbott et al's Downs Est. 1, se se nw 32-28s-2e, testing. Union O&R et al's Howell 1, sw sw sw 6-29s-1e, sd 2400 ft. Frank Hudson et al's Fulton 1, ne ne se 35-28s-1e, fsg 1550 ft. McKnabb's Garrett 1, se sw sw 18-29s-1e, sd 100 ft. Steinbuchel et al's McAdams 1, sw sw ne 28-29s-1e, dr 1920 ft.

STAFFORD COUNTY—Hinkle et al's Moses 1, nw nw sw 9-22s-13w, td 3807 ft, may pb to K. C. lime. Torry & Feaster et al's Heggy 1, ne ne sw 26-33s-11w, dr 3443 ft; Negley 1, sw sw ne 23-22s-12w, dr 692 ft. Lindsay & Bailiere et al's Tiepermann 1, sw sw nw 31-22s-12w, dr 3663 ft. Cardinal et al's Sittner 1, sw sw sw 4-22s-12w, dr 3617 ft. Carter's Andress 1, c nl se 2-21s-13w, dr 1547 ft. J. I. Shaffer et al's Newell 1, ne ne se 20-24s-11w, rur.

SUMNER COUNTY—W. M. McKnabb's Blair 1, sw sw sw 7-30s-1e, td 3869 ft, swbng. Saco Oil Co. and Cameron et al's Phipps 1, sw se ne 24-30s-1w, spd, sd. H. T. Jones et al's Stunkel 1, se se sw 2-30s-1w, rig. E. B. Shawver's Stewart 1, nw nw se 4-32s-3w, rur.

TREGO COUNTY—Carlock's Kinzel 1, sw sw sw 9-13s-22w, spd, sd.

WOODSON COUNTY—Charles Reeser et al's Weide 1, nw nw se 18-25s-14e, sd 1150 ft. London & Mendenhall's Slough 1, ne ne sw 9-24s-13e, ru mach.

SOUTH LOUISIANA

ACADIA PARISH—Gulf's Broussard 1, Midland area, 49-10s-2w, dr shale 9918 ft.

CALCASIEU PARISH — Shell's Calcasieu National Bank 1, Hayes area, 18-11s-5w, woc 65 ft.

CAMERON PARISH—Humble's Miami Corporation 1, Catfish Lake area, 8-14s-5w, dr shale in sdtr hole 7849 ft. Superior's State 1, in Gulf of Mexico, dr shale 8972 ft.

IBERIA PARISH—Texas Co.'s State 2-B, in Vermilion Bay, 20-15s-6e, dr shale 7020 ft.

JEFFERSON DAVIS PARISH — Continental's Fay 1, se of South Roanoke, 31-10s-3w, abn 10,935 ft. Union Sulphur's Calcasieu National Bank 1, Woodlawn area, 12-9s-8w, testing 8286 ft.

LAFOURCHE PARISH—Amerada-Louisiana Land & Exploration Co.'s South Coast 1, Raceland area, 34-15s-19e, dr plug 10,262 ft. Gulf's State PP 3, Timbalier Bay, 36-23s-21e, woc 6963 ft.

ST. BERNARD PARISH—Gulf's State RR 3, in Lake Borgne, 12s-15e, lcn.

ST. MARTIN PARISH—Shell's Frederick 1, Arnaudiville area, 38-8s-5e, dr shale 9261 ft. Shell-Tide Water's Unit 1, w of Lake Verrett prospect, 11-14s-12e, dr hard sand 6820 ft. Texas Co.'s State 4, Lake Mongoulois salt dome, 14-10s-9e, dr sandy shale 5256 ft.

ST. MARY PARISH—Shell's Barbour 1, Glenwild area, 21-15s-12e, abn 10,517 ft.

TERREBONNE PARISH—Fohs Oil Co.'s Buckley 1, Dulac area, 77-19s-17e, dk; same operator's State 1, LaTerre area, 41-19s-19e, ru.

NORTH LOUISIANA

BIENVILLE PARISH—DeSoto O&G Co.'s Ashley 2, c sw se 15-16n-10w, ru & sd. Gulf's Goodpine 1, se sw 25-14n-8w, elev 157 ft, massive anhydrite 5303-5420 ft, dr 7220 ft. Hunt-Seaboard's Hodge-Hunt Lbr. Co. 1, se nw 36-17n-6w, rur.

CADDO PARISH—A. D. Robinson et al's Dickson 1, 22-20n-14w, 5-3/13-inch csg 2400 ft, tested sw in Tokio, dr 2595 ft. A. D. Olsen et al's Sharp A-1, nw ne 10-18n-16w, lcn.

CALDWELL PARISH—G. W. Zeigen's La. Cent. Lbr. Co. 12, 20-14n-3e, dr 900 ft.

CATAHOULA PARISH—G. E. Foster et al's W. S. Peck 1, c s½ 39-10n-8e, woc 16-in casg 20 ft.

CLAIBORNE PARISH—W. L. McClanahan's J. T. Lewis 1, c w½ sw se 25-20n-7w, sd 5507 ft. Union Prod. Co. et al's Brownfield 2, c se nw 5-19n-5w, elev 235 ft, coring 8935 ft, shale and shells; Kilpatrick A-1, c se ne 11-19n-6w, dr 4156 ft, lime and shale.

DE SOTO PARISH—Clear Lake Oil Co.'s Woolums 1, nw nw 29-12n-12w, cored sand so, sd for csg td 2694 ft. Kingston Oil Co.'s Scott 1, ne ne 32-14n-13w, pumping wo gauge td 2778 ft. La. Seaboard's Lawrence 1, sw ne 36-12n-14w, dk. Alexander et al's Stell 1, 5-12n-16w, ow dd, td 6002 ft.

FRANKLIN PARISH—Southern Star Pet. Corp.'s Grayson 2, sw ne 36-12n-6e, rur.

LINCOLN PARISH—E. T. Oakes, H. D. Easton et al's N. L. Griggs 1, c sw 36-18n-1w, elev 199 ft, arranging to perf & test Petitt lime 5932-41 ft, 5½-in csg 6121 ft, td 6260 ft, Travis Peak shale with slickensides.

MADISON PARISH—Continental Oil Co.'s Singer Mfg. Co. 1, c ne ne 3-15n-11e, lcn.

MOREHOUSE PARISH—W. J. Furlong, Jr., et al's E. M. Clark 1, 10-20n-7e, elev 103 ft, dr 5898 ft, lime & shale (in lower Marine).

RED RIVER PARISH—Ark. Fuel Oil Co.'s Franklin Realty Co. 1, c ne nw 20-11n-9w, top anhydrite 4960 ft, coring 6646 ft.

SABINE PARISH—J. C. Sutton Oil Co.'s Sabine Lbr. Co. 1, se nw ne 23-7n-14w, dr 1865 ft (10,000 ft test).

TENSAS PARISH—H. M. Jones' Chicago Mill & Lbr. Co. 2, c ne sw 31-12n-10e, dr 750 ft, shale.

UNION PARISH—Joe Modisett et al's Frost 1, ne sw 14-21n,1e, elev 188 ft, top Travis Peak 4050 ft, 9⅝-in csg 4358 ft, top lower Marine 6161 ft, arr to deepen to 9100 ft, td 7010 ft.

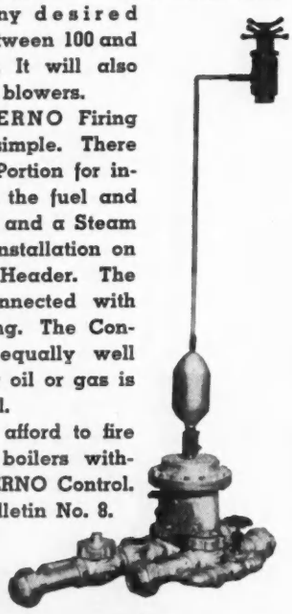
WEBSTER PARISH—Magnolia's Sexton 1,

Uniform Steam Pressure with **INFERNO FIRING CONTROL**

You can automatically hold steam pressure at a uniform level, regardless of load fluctuations. You achieve this by equipping your boiler or set of boilers with an INFERNO Firing Control, which holds the pressure within a small variation from any desired pressure between 100 and 450 pounds. It will also operate the blowers.

This INFERNO Firing Control is simple. There is a Valve Portion for installation in the fuel and steam lines, and a Steam Portion for installation on the Steam Header. The two are connected with copper tubing. The Control works equally well where either oil or gas is used for fuel.

You can't afford to fire oil country boilers without the INFERNO Control. Write for Bulletin No. 8.



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Have You Taken the Peace Pledge?

Write for information.

c sw ne 32-23n-9w, elev 225 ft, 13⅜-in csg 838 ft, top first anhydrite stringer 4175 ft, massive anhydrite 4348-4558 ft, cored oolitic lime with gas odor 5579-86 ft, dr 5642 ft, shale and lime. Lunsford & Ferguson's Turner 1, 20-20n-8w, spd woc 12-in csg 86 ft.

WINN PARISH—G. W. Zeigen's La. Cent. Lbr. Co. 13, 4-13n-1e, rur.

MICHIGAN

ALLEGAN COUNTY—Lenoran Pet. Co.'s Deleg 1, 22-4n-12w, ur 1210-1600 ft. Eureka Dev. Co.'s Widenfeller 1, 29-4n-12w, rig. Huges Heinig's Lundburg 1, 29-3n-14w, dr 550 ft. Adrian Stellard's Schafer 1, 29-3n-12w, dr 760 ft. S. B. Hood's Wright 1, 9-3n-13w, sd 1350 ft. Fletcher Carcallen's Dam 1, 3-4n-14w, dr 600 ft. Vauge & Nilsen's Vedetta 1, 25-2n-14w, lcn.

ARENAC COUNTY—R. L. Hill's Reinhart 1, 25-19n-5e, rig. Sterling Drlg. Co.'s Kline 1, 19-19n-4e, dr 1300 ft. R. B. Tamblyn's McFarlan 1, 34-20n-3e, mim. D. F. Jones' Sibley 1, 33-20n-7e, sd 2400 ft.

BARRY COUNTY—Collin & Soper's Simmons 1, 3-4n-10w, rig.

BAY COUNTY—V. Leonard & Olympia's Hossler 1, 9-18n-3e, dr 1900 ft. Gulf's Marston 1, 1-14n-4e, testing, so 3900 ft. Stork Oil Co.'s Century 1, 9-17n-3e, Dundee 3030 ft, sd 3283 ft. Century Oil Co.'s Wilson 1, 27-17n-3e, Dundee 3134 ft, dr 3236 ft.

CALHOUN COUNTY — Mar-Cal Development Co.'s Woods 1, 13-2s-6w, rig. Verona Crude Oil Co.'s Fruin 1, 29-2s-6w, rig.

CLARE COUNTY—Gulf's Citizens Bank 1, nw nw nw 36-17n-4w, rig. James A. McKay's Fee 11, 24-18n-5w, ur 1500 ft. Big Basin Oil Co.'s Murphey 1, 26-17n-3w, dr 100 ft.

GLADWIN COUNTY—Pollock-Gordon's Delbridge 1, 1-17n-2e, sd 3345 ft. Swanson Oil Co.'s Vantick 1, 30-17n-2e, sd 1200 ft. W. E. Ross' Kinyon 1, 18-18n-2e, sd 1100 ft. Rex Oil Co.'s Auer 1, 22-18n-2e, dr 990 ft. Daily Crude Oil Co.'s Caplan 1, 10-19n-1e, dr 1610 ft. Franklin Pet. Co.'s State 1, 8-19n-2e, rig.

GRATIOT COUNTY — Bliss & Redman's Martin 1, 26-10n-3w, sd 3040 ft.

HURON COUNTY—L. D. Hendershot's M. Klamp 1, 1-17n-14e, sd 2029 ft. C. W. Teater's Martin 1, 15-15n-11e, dr up bailer 2779 ft.

IONIA COUNTY—Rex Oil Co.'s Marion 1, 11-8n-5w, dr 2550 ft.

ISABELLA COUNTY — J. V. Wicklund Dev. Co.'s Lawens 1, 24-15n-5w, dr 500 ft. J. G. Zabel's Kennedy 1, 25-14n-4w, fsg 1485 ft.

KALAMAZOO COUNTY — Premier Oil Corp.'s Bourner 1, 3-2s-12w, mim. Premier Oil Co.'s Stephens 1, 21-2s-12w, rig.

MECOSTA COUNTY—Sun's Robart 1, 29-16n-7w, dr 1700 ft. Jetter Oil Co.'s Deakins 1, 28-13n-7w, sd 210 ft. Frank Hebard's Weeks 1, 32-15n-7w, dr 1100 ft.

MIDLAND COUNTY—Sun's State B-1, 5-16n-1w, sd 3900 ft; Consumers 1, 9-16n-1w, rig. Chapman Oil Co.'s State 1, 27-16n-1w, dr 2600 ft. C. W. Teater's Tushingham 1, 26-16n-2w, dr 1200 ft.

MONTCALM COUNTY — Socony-Vacuum's Hansen 1, 22-12n-6w, driving 14-in 599 ft. H. L. Gentry's Christensen 1, 29-11n-8w, sd 1255 ft.

NEWAYGO COUNTY — Midstate Corp.'s Eichenberger 1, 7-16n-11w, dr 3795 ft.

ROSCOMMON COUNTY—Maynard Smith's Eggleston 1, 32-21n-2w, dr 3860 ft.

WEXFORD COUNTY—G. H. Schrack's Fee 1, 17-22n-9w, dr 1100 ft.

MISSISSIPPI

CALHOUN COUNTY—Ed Spencer's J. C. Conner 1, se ne 12-24n-8e, dr 1339 ft.

CLAIBORNE COUNTY—Claiborne County Dev. Co.'s Ruth Hayden 1, s½ se 55-11n-2e, elev 199 ft, top Vicksburg 675 ft, top Jackson 935 ft, top Cockfield 1346 ft, pump repaired, arr deepen, td 1455 ft, shale, strks sand & pyrites.

GEORGE COUNTY—Cleve Love et al's J. J. Newman Lbr. Co. 2, c sw 9-1s-8w, spd & sd.

HINDS COUNTY—Cleve Love et al's Montgomery 1, sw se se 28-6n-4w, lcn. Black River Oil Co.'s Federal Land Bank 1, ne ne 11-15n-5e, elev 146 ft, sd 6109 ft, black shale (Wilcox). Cleve Love et al's S. F. Johnson 1, ne se 29-6n-1w, 10-in csg 93 ft.

LAMAR COUNTY—Sun Oil Co. et al's Mrs. Kate Talley 4, se nw 33-4n-15w, elev 374 ft, dr 7994 ft, hd formation. Southern Miss Pet. Corp.'s Morris 1, nw se 4-2n-14w, sd 50 ft.

PERRY COUNTY—Phillips Pet. Co.'s J. J. Newman Lbr. Co. 1, se se sw 21-2n-10w, elev 210 ft, hole clean, dd td 6052 ft, sandy shale and strks lime.

SIMPSON COUNTY—Goodwill O&G Co.'s Berry 1, se sw 33-2n-4e, dr 875 ft (no recent report).

YALABOUSHA COUNTY—Acme Holding Co.'s S. D. Boyle 1, nw nw 33-25s-7e, elev 285 ft, arr run formation tester in Midway, depth not given.

OKLAHOMA

ADAIR COUNTY—B. L. Maddox' Penn Mutual 1, cs¼ ne nw 5-16n-24e, dr 260 ft.

ATOKA COUNTY—C. M. Sheldon and Gardner Pet. Co.'s Lee 1, ne nw sw 2-4s-10e, dr 2200 ft. Stanolind and Amerada's Ridgeway 1, nw ne ne 24-3s-9e, bldg rig.

BECKHAM COUNTY — Mid-American Oil Co.'s Biscoe 1-A, sw sw sw 28-8n-22w, dr 2512 ft.

BRYAN COUNTY—Southern Oil Co.'s Henry 1, cnw ne 10-8s-7e, pb to 1060 ft, wocs.

CADDO COUNTY—I.T.I.O.'s Dome-Bo 1, cne se 29-6n-10w, sd 6900 ft.

CARTER COUNTY—Lloyd & Noble's Revelle 1, sw sw se 21-3n-2w, sd 4028 ft.

CLEVELAND COUNTY—Harper & Turner's Pollock 1, cw¼ nw nw 13-9n-2w, wocs 6807 ft. H. R. Hollenback et al's Mantooth 1, nw nw nw 24-6n-1e, rig. W. A. Delaney et al's Bugher 1, se se sw 12-7n-2w, wo tools.

CHOCTAW COUNTY—V. K. Chapman & Lowe's Hallum 1, nw nw ne 4-7s-20e, fsg 340 ft. J. A. True's Boby 1, nw se nw nw 17-7s-19e, sd 2044 ft.

COAL COUNTY—Carter et al's Claytor 1, cw½ ne sw 27-2n-9e, testing.

COMANCHE COUNTY—J. W. Wolfe's Costinus 1, sw sw se 30-4n-11w, spd. Frank Scott's Kuntz 1-A, se ne se 27-4n-11w, sd 2800 ft.

GARFIELD COUNTY—H. R. Hollenback et al's Clark 1, nw nw nw 34-21n-6w, dr 6934 ft.

GRADY COUNTY—Gulf's Thomas 1, sw nw nw 14-4n-5w, dr 9850 ft. Doyle Pet. Co.'s Huffine 1, nw nw se 30-5n-8w, dk.

GRANT COUNTY—Magnolia's Reynolds 1, ne ne se 19-25n-5w, dr 5635 ft.

GREER COUNTY — J. I. Medlin et al's Broudie 1, nw nw nw 5-6n-20w, sd 90 ft. R. W. McDonald's Fite 1, se se nw 34-7n-21w, dr 420 ft. Gaunt & Baker's Parks 1, nw nw sw 29-7n-20w, sd 595 ft. J. A. Everitt's Graumann 1, ne nw nw 11-5n-21w, cellar and pits.

HUGHES COUNTY—Phillips' Becker 1, ne nw sw 8-5n-10e, testing. Pure's Rogers 1, se se ne 18-8n-12e, abd 3600 ft, hfw. Homer Doup et al's Bank 1, ne ne nw 7-7n-9e, rust, sd. Kenneth Ellison et al's Metro Life 1, cne ne 14-7n-9e, dr 4104 ft.

JEFFERSON COUNTY—Massad & Swainsberger's Barrett 1, ne se se 14-6s-6w, sd 1890 ft. H. W. Weir et al's Hayes 1, se se nw 23-7s-7w, dk.

JOHNSTON COUNTY—Patton et al's McCrummens 1, sw sw ne 16-1s-6e, sd 1380 ft. W.

OSAGE OIL LEASES in units of 160 and 640 acres each, totaling 50,400 acres, will be sold at public auction, under Government supervision, at Pawhuska, Oklahoma, to the highest bidder, January 26, 1938. Sealed bids, accompanied by twenty-five percent of amount offered on each tract, will be accepted, if received date preceding sale. These tracts are scattered throughout an area of 1,500,000 acres, the minerals underlying which are owned as a whole by the Osage Tribe, and leases made therefor are approved by the Secretary of the Interior and operations conducted under Government regulations promulgated by him, thus eliminating controversies involving ownership of minerals. For detailed information write or wire the Superintendent, Osage Indian Agency, Pawhuska, Oklahoma.

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T. Shelton's Chapman 1, cnw nw 26-4s-6e, dr 2810 ft.

KAY COUNTY—E. J. Shaffer et al's McKee 1, ne ne nw 20-28n-1w, sd 2500 ft. E. J. Shaffer et al's Rudolph 1, ne ne sw 27-29n-1w, cellar. Clark Nye's Willin 1, se se sw 24-27n-4e, cellar. Helmerich & Payne's Scott 1, se se ne 20-28n-1w, coring 3709 ft.

KIOWA COUNTY—Hughes & Reese' Fultz 1, se se se 10-6n-18w, sd 1238 ft.

LOGAN COUNTY—Texas Co.'s Roper 1, cw½ sw se 22-15n-1e, sd 5542 ft.

LOVE COUNTY — Sinclair Prairie's Peabody Seating Co. 1, ne ne ne 35-6s-2w, lcn.

MAJOR COUNTY—Ed Parsons' Patzkowsky 1, cnw¼ 10-20n-11w, rig.

MURRAY COUNTY—O. O. Owens' Gryer 1, ne se ne 34-1s-3e, dr 2685 ft.

MUSKOGEE COUNTY — F. E. Cusack's Elliott 1, cnl nw sw 20-15n-20e, rog. Cusack's Fee 1, ne sw se 20-15n-20e, spd 65 ft.

OKFUSKEE COUNTY — Mid-Continent's Inland 1, sw ne sw 10-13n-10e, set 7-in csg 3397 ft, rust. Broswood Oil Co.'s Lehman 1, nw sw nw 21-13n-10e, dr 270 ft.

OKLAHOMA COUNTY—W. O. Allen et al's Weaver 1, ce¼ se nw 6-14n-3w, rur, sd.

OKMULGEE COUNTY—Phillips' Woods 1, nw sw sw 31-11n-13e, attempting wtr shut-off. H. D. Detrick et al's McCann 1, nw se sw 33-14n-11e, lcn.

OSAGE COUNTY—Norbla-Carter's Norbla-Mullendore 1, nw nw nw 3-24n-6e, spd.

PAYNE COUNTY—Mid-Continent et al's Ramsey 1, sw sw nw 18-18n-2e, flow 500 bbls oil, 3½ hrs, comp. Sagemore Drlg. Co.'s Moore 1, se sw nw 17-18n-1e, rig.

PONTOTOC COUNTY—Union Dev. Co.'s Abbott 1, sw nw ne 34-3n-6e, sd 3320 ft. H. W. Lee's Weatherly 1, nw se nw 24-1n-7e, spd, sd. Riddle et al's Fee 1, nw sw se 11-3n-5e, dr 2925 ft.

ROGER MILLS COUNTY — Central Pet. Corp.'s Lambe 1, se se se 27-14n-21w, rig corners, sd.

SEMINOLE COUNTY—H. V. Woodson & Marydun Oil Co.'s Gilliland 1, se se sw 24-11n-7e, dr pipe stuck.

STEPHENS COUNTY — Coline Oil Co.'s Johnson 1, sw se ne 1-2n-8w, sd 8756 ft. Clark & Cowden's Simpson 10, ne se ne 11-1n-5w, pb 4170 ft, aw/3000 gals; gauge 5,970,000 cf gas. comp. Helmerich & Payne's Pfile 1, sw sw sw 1-2s-7w, dr 3988 ft.

TEXAS COUNTY—Hagey et al's Peck 1, cne¼ 6-1n-13ecm, td 2842 ft, pull 5-3/16-in csg and set whipstock.

TILLMAN COUNTY—Smith's Hammell 2, ne nw nw 6-5s-15w, dr 1581 ft.

WASHITA COUNTY—L. B. McWhirter et al's Fee 1, nw sw sw 34-8n-19w, dr 1925 ft.

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3. We can accurately record structural accelerations 5 out of 6 times, and

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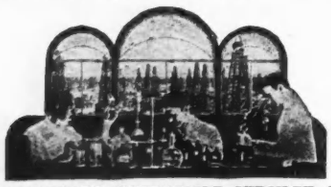
5. By chemical analysis of surface soils.



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WEST TEXAS

(This report is confined to the north portion of the Permian Basin).

ANDREWS COUNTY—Olney S. Black et al's O. B. Holt-Sun 1, nw nw nw PSL sec D, blk 43, elev 3127 ft, top anhydrite 1795 ft, top Yates 2970 ft, dr lime 4195 ft. Honolulu Oil Corp.'s J. E. Parker 1-6, ne ne nw PSL sec 6, blk A-44, elev 3212 ft, top anhydrite 1960 ft, top lime 4160 ft, dry and abnd in sul wtr 4793-4806 ft. Seaboard et al's Munger-Nix 1, c ne¼ PSL sec 1, blk A-41, elev 3250 ft, top anhydrite 1704 ft, dr 1760 ft. H. C. Wheeler-E. M. Wahlenmaier's F. E. Gardner 1, c sw sw PSL sec 16, blk A-35, machine.

BAILEY COUNTY—Geo. Etz et al's I. C. Enochs 1, c labor 66, league 182, Floyd C. S. L. sur, elev 3788 ft, top lime 3173 ft, sd in sul w 4160 ft.

BORDEN COUNTY—Continental's Clayton-Johnson 1-A, nwc of T&P Ry. sec 27, blk 32, T-4-N, elev 2534 ft, abd in sul w 3495-3538 ft.

COCHRAN COUNTY—M. S. Ingleright-E. E. Fogelson's Mrs. N. H. Tarver 2, near sec labor 14, league 55, Oldham C.S.L. sur, cored lime 4996-5073 ft, shot 150 qts nitro 5027-73 ft, then used 2000 and 500 gals acid, swabs 10 bbls oil per hr. J. R. Meeker et al's Wright 1, nwc sw labor 26, league 96, Mills C.S.L. sur, elev 3774 ft, top anhydrite 2330 ft, top lime 4105 ft, cem 7-in cas 4505 ft, show oil, td 4934 ft, rust.

FLOYD COUNTY — Mills Bennett Prod. Co.'s Thos. Montgomery 1, nec F. J. Latham sur No. 2, A-520, elev 3380 ft, top lime 3255 ft, dr 4200 ft.

GAINES COUNTY American Liberty Oil Co.'s T. L. Wynne, Tr. W. M. Willard 1, swc of PSL sec 38, blk AX, elev 3561 ft, top lime 4370 fe, used 1000 gals in pay 4962-5000 ft, flowed 294 bbls initial via tubing; Willard 2, rig. Amerada's T. S. Riley 1, c se se of W. T. Ry. sec 229, blk G, elev 3333 ft, top anhydrite 1968 ft, dr 4410 ft; J. B. Robertson 1, c sw sw of W. T. Ry. sec 196, blk G, elev 3344 ft, top anhydrite 2113 ft, base salt 3092 ft, dr 4505 ft. Continental's G. M. Langdon 1-43, nec w½ sec 43, blk AX, rur; A. L. Wasson 1-B, nec se¼ sec 53, blk AX, used 1000 gals acid at 4996 ft, complete flowed 824 bbls oil and 1,300,000 ft gas; A. L. Wasson 2-B, SEc sec 53, dr 2389 ft. Conoco-Amon G. Carter's A. L. Wasson 4, swc PSL sec 48, blk AX, shot 310 qts 4848-4986 ft and used 8000 gallons acid, flowed 1597 barrels oil and 1,825,000 ft gas initial; Wasson 5, nwc sw¼ sec 48, cem 7⅝ inch casing 3003 ft; G. M. Langdon 2-44, swc se sec 44, blk AX, cem 7⅝ in cas 2168 ft. Ohio's S. J. Averitt 2, c sw ne W. T. sec 228, blk G, dr 3260 ft. Phillips-I.T.I.O.'s T. S. Riley 1, nwc sec 345, blk G, used 5000 gals acid at 4960 ft, testing. Plymouth Oil Co.-A. G. Carter and Conoco's H. Giesecke 1, nwc labor 1, league 296, Reagan C.S.L. sur, elev 3115 ft, co to deepen, td 2130 ft. Shell's R. A. Cox 1, nec sec 380, blk G, CCSD&RGNG sur, elev 3537 ft, top anhydrite 2040 ft, swab 95 percent sul w at 4995 ft, pb to 4950 ft, re-used 3000 gals acid, swabs 30 bbls w per hr; G. N. Robertson 1, nwc ne sec 344, blk G, elev 3522 ft, top anhydrite 2210 ft, top brown lime between 4160 and 4180 ft, td 4345 ft, cem cave.

GARZA COUNTY—M. L. Richards et al's J. B. Slaughter 1, se se se T. T. Ry. sec 5, blk 8, elev 2870 ft, dr 3680 ft. Gulf's Swenson 1, lcn for 8500-ft Ordovician test.

HOCKLEY COUNTY—Gulf's M. G. Gordon 1, nwc PSL sec 12, blk X, rur; Mallet Land & Cattle Co. 1, nec PSL sec 6, Blk X, rur. Sid W. Richardson et al's Slaughter 1, swc labor 59, league 39, Maverick C.S.L. sur, elev 3547 ft, top anhydrite 2140 ft, top lime 4120 ft, cem 7-in cas, td 4700 ft. Honolulu Oil Corp.'s Dorothy Slaughter 1-51, near swc labor 51, league 37, Zavalla C.S.L., mim; D. S. Slaughter 1-77, labor 77, league 37, Zavalla C.S.L., mim.

MARTIN COUNTY — Harris-Anderson Corp.'s Mrs. M. Robinson 1, c sw¼ of T&P Ry, sec 33, blk 36, T-1-N, elev 2776 ft, top anhydrite 1630 ft, top lime 3720 ft, dry and abd in sul w 4152-4189 ft.

LAMB COUNTY — American Liberty Oil Co., T. L. Wynne, Tr.'s A. Neunschwander 1, 660 ft out of sec labor 1, league 660, Capitol Lands, td 3285 ft, dr by at 2670 ft.

LYNN COUNTY—John L. Baldridge et al's Alamo Lumber Co. 1, ne sw sw HE&WT sec 151, 6 mi w New Home, elev 3267 ft, sp. C. H. Hutto et al's Brownfield 1, near c of EL&RR Co. sec 6, blk A-1, sd 687 ft.

YOAKUM COUNTY — Bohago Oil Corp.-Bond Oil Corp.'s W. L. West 1, se se se sec 607, blk D, elev 3664 ft, top anhydrite 2275 ft, dr 4450 ft. Denver P&R Co.'s J. A. Whittenburg Est. 3, dr 3375 ft; Whittenburg 4, c nw ne sec 831, rur; Whittenburg Est. 2-A, c ne nw sec 830, blk D, top anhydrite 2220 ft, dr 5020 ft. Gulf's S. J. Dixon 1, sw se se sec 609, blk D, cem cas 340 ft; J. C. Futch 1, nw se se sec 796, blk D, cellar. Honolulu Oil Corp.'s R. E. Bennett 3, se¼ sec 677, blk D, top anhydrite 2360 ft, top Yates 3090 ft, td 5184 ft, flows by heads, testing. Honolulu-Cascade Pet. Co.'s Bennett 2, nwc ne¼ sec 678, blk D, dr 1100 ft. Ohio's L. N. Clawater 1, c nw nw sec 638, blk G, elev 3659 ft, top anhydrite 2160 ft, top Yates 2900 ft, dr 3015 ft; Fairman 1, c se se sec 797, blk G, dr 290 ft. E. H. Pitkin and Lou Stogner's J. A. Blades 1, c ne ne sec 103, blk D, elev 3851 ft, top anhydrite 2393 ft, top Yates 3230 ft, top solid lime 4460 ft, first saturation 5198 ft, td 5266 ft, tested trace oil with salt wtr, may plug back. Shell's Geo. Baumgart 1-B, se sec 829, blk D, dr 4610 ft; Baumgart 1-C, ne sec 866, dr 2250 ft; Ruth Bennett 1, ne se ne sec 677, blk D, elev 3558 ft, top brown lime 4662 ft, used 10,000 gals acid in lime pay 5105-5259 ft, flowed 492 bbls 31.7° oil initial; J. H. Lynn 1, c sw sw sec 798, blk D, elev 3623 ft, flowed 222 bbls oil initial after 10,000 gals acid at 4999 ft. Sun's J. H. Lynn 1, c ne ne sec 798, blk D, dr 4415 ft. Texas Co.'s Willard 1, c sw sw sec 799, blk D, cem 7-in 4750 ft, rust; Willard 2, c nw nw sec 799, elev 3613 ft, top lime 4460 ft, cem 7-in 4750 ft, rust. T. P. Coal & Oil Co.'s Ruth Bennett 3, swc nw sec 678, blk D, shot 620 qts nitro 5100-5250 ft, flowed 1540 bbls 35° oil initial; Bennett 4, dr 230 ft; Bennett 5, sec nw sec 678, rig. Toddie L. Wynne, Tr.'s Fairman 1, c ne se sec 797, blk D, elev 3627 ft, dr 600 ft.

EAST TEXAS

ANDERSON COUNTY—Humble's Southern Pine 1-C (210-ac), John Morton sur, 2 mi ne Jarvis, elev 339 ft, top Woodbine 4284 ft, top Georgetown 5040 ft, top 1st anhydrite 7400 ft, massive anhydrite 7615-7793 ft, broken to 7828 ft, top Travis Peak 8895 ft, abd 9154 ft. H. L. Parsons et al's H. B. Hemby 1 (213-ac), John Gossett sur, 7 mi ne Navarro, elev 263 ft, Pecan chalk 4063-4235 ft, Austin chalk 4085-5223 ft, top Woodbine series 5360 ft, 1st sand 5394-5424 ft, 2nd sand 5428-87 ft, pb and gun-perforated 24 shots 5409-19 ft, est 3,000,000 ft dry gas ¼-in choke, 2200 lbs closed press.

BOWIE COUNTY—King Oil Corp.'s W. W. Ames 1, J. A. Talbott sur, 4½ mi nw Texarkana, elev 23 ft,dr63

CHEROKEE COUNTY—Merica Oil Co.-W. L. Stone's Cherokee Dev. Co. 1, A. J. Acker sur, 2 mi e Maydelle, dk. Gray & Wolfe's M. Dupree 1 (131-ac), Levi Jordan sur, rig.

DALLAS COUNTY—Mauldin Oil Co.'s W. E. Howell 1 (107-ac), S. Layton sur, 8 mi e Grapeland, sd 807 ft. Plaza Oil Co.-W. A. Brooks, Jr.'s B. J. Davidson 1 (75-ac), John D. Merchant sur, rig.

DELTA COUNTY—O. W. Killam et al's Delta Farming Assn. 1, J. Dollahite sur, 4 mi ne Sulphur Bluff, elev 348 ft, top Woodbine 2712 ft, sd 2920 ft.

GREGG COUNTY—Humble and Gulf's E. D. Robertson 1 (11.4-ac), M. Mann sur, 2½ mi w by s of Longview, 4 mi e production, elev 272 ft, Austin chalk 3202-3341 ft, top Georgetown 3341 ft, top Paluxy 4541 ft, top 1st Glen Rose 4876 ft, top anhydrite stringer 5617 ft, massive anhydrite 6214-6532 ft, top Travis Peak 7325 ft, dr 8085 ft.

HENDERSON COUNTY—E. B. LaRue et al's Breedlove-Mills 1 (232½-ac), J. Dunn sur, 5 mi nw LaRue, elev 485 ft, Pecan chalk 1906-70 ft, sd 2530 ft.

HOPKINS COUNTY—Walter L. Goldston-Normandie Oil Corp.'s H. J. Smith 10 (450-ac) J. A. Craft sur, sub-Trinity test, Sulphur Bluff field, elev 439 ft, Pecan chalk 1510-1610 ft, top Paluxy pay 4499 ft, top 1st anhydrite 5510 ft, massive anhydrite 5605-5707 ft, top Red Beds 5760, top salt water in lower Glen Rose 5795 ft, td 6600 ft, pb to Paluxy.

LEON COUNTY—Lone Star Gas Co.'s Sara Melasky 1 (81.98-ac) M. C. Lee sur No. 500, Buffalo area, rur.

LIMESTONE COUNTY—Pure's Kendrick 16-T (96-ac), Mexia field, elev 508 ft, top Georgetown 3365 ft, top 1st Glen Rose 4270 ft, top broken anhydrite 5132 ft, Travis Peak series 5656-7676 ft, top lower Marine 7676 ft, lost d p at 8847 ft, pb and tested salt water in lower Trinity, pb to Woodbine. Stanolind and Ramsey's T. Norris 1 (40-ac), K. Thrasher sur, 5 mi n Kosse and on Thornton fault, elev 528 ft, Austin chalk 2791-2890 ft, top Woodbine 2980 ft, top Georgetown 3255 ft, top 1st Glen Rose 4026 ft, top 1st anhydrite 4886 ft, top Pettit 5375 ft, top Travis Peak 5523 ft, dr lower Marine 8015 ft.

NAVARRO COUNTY—Mrs. Jane Robinson et al's Fortson Bros. 1, Eli Smith sur, 5 mi ne Corsicana, elev 345 ft, Austin chalk 1346-1585 ft, sd 1940 ft. Tom Sharp et al's E. B. McDowell 1 (65-ac), T. J. Jordan sur, ½ mi s Bazette, Pecan chalk 1980-2005 ft, Austin chalk 2835-2935 ft, dry and abd 3160 ft.

UPSHUR COUNTY—Tom Hunter and American Liberty Oil Co.'s Dr. Chas. Carter 1 (80-ac), J. H. Fields sur, 1½ mi n Kelsey, Trinity test, elev 428 ft, Pecan chalk 2250-2690 ft, Austin chalk 3295-3332 ft, top Red Beds 5085 ft, top Paluxy 5590 ft, dr 5890 ft. L. & G. Oil Co.'s Henry Williams 1 (315-ac), L. S. Von Roeder sur, 2 mi nw Gracetown, elev 304 ft, Pecan chalk 2500-2940 ft, Austin chalk 3555-3723 ft, Woodbine 3750-52 ft, tested water.

EAST TEXAS BORDER COUNTIES

CASS COUNTY—V. A. Hughes & Co.'s Lyster 1, Wm. Bateman sur, claim so&g 1953-66 ft, dr 3480 ft.

HARRISON COUNTY—Ark. Fuel Oil Co.'s C. M. Abney 1, Eason Little sur, elev 278 ft, reconditioning mud to dd after gas blowout in Hill td 4820 ft. Eastern Shrevetex Oil Co.'s Mable George 1, J. S. Powell sur, pumping wo gauge td 2505 ft.

PANOLA COUNTY—C. K. Crews' J. C. Graves 1, McGowen sur, sd 2531 ft. Preston et al's Rushing 1, Mannan Smith sur, owdd td 2950 ft. Texas Co.'s Claude Adams 1, Thos. Cox sur, lcn.

SOUTH TEXAS

SAN ANTONIO DISTRICT

BASTROP COUNTY—Bibb's Lentz 1, Wilkinson sur, testing 2540 ft. Southern Cross' Smiht 1, Blalock sur, sd for fuel, td 2185 ft.

BEXAR COUNTY—Ball & DuBose's Miller 1, sur 55, dr 450 ft. Fair's Medina 1, blk 55, testing 1190 ft. Rosenburg's Carle 1, Rolen sur, ru larger rig, 245 ft.

CALDWELL COUNTY—Brady & Pummel's Jackson 1, Morris sur, testing, td 2680 ft. M. & R. Inc.'s Dunavant 1, Williams sur, dr 754 ft. Mac-Wag-Tree's Roberts 1, House sur, dr 2317 ft. Whitley's Jennings 1, wocs, set sur csg.

DIMMITT COUNTY—Teas & Maryland's McKnight 1, I&GN RR sur, dr 6010 ft in Del Rio topped 5924 ft.

EDWARDS COUNTY—Carter's Sweeten 1, GC&SF sur, dr 5511 ft. Evans & Love's Brown 1, GWT&P sur, dr 5274 ft.

FRIO COUNTY—Amerada's Melms 1, Alexander sur, woo, perforated 3929-32 ft, s/20 shots, tested 1 mcf gas, ¼-in chk.

GUADALUPE COUNTY—Kallison's Burris 1, Nash sur, cor 2890 ft at top of chalk.

KENDALL COUNTY—Landon & Holifield's Sidensticker 1, Rodriguez sur, dr 475 ft.

MILAM COUNTY—Tuxedo's Graham 1, Cronea sur, dr 475 ft. Graves 1, Robertson sur, dr 469 ft.

WILLIAMSON COUNTY—Aldridge's Kroschewsky 1, Parrass sur, dr 749 ft.

ZAVALLA COUNTY—Wilcox's Gilliam 2, GWT&P sur, trying to pb from 3983 ft.

CORPUS CHRISTI DISTRICT

COLORADO COUNTY — Coyle-Concord's Brousard 2, Dufner sur, dr 1250 ft.

DEWITT COUNTY—Davis' Afflerbach 2, Criswell sur, dr 650 ft.

GOLIAD COUNTY—Swiger's Wood 1-B, Heard sur, reported ru to pump, perforations 5009-15½ ft, td 5048 ft.

HIDALGO COUNTY—Morton's Guerra 1-A, por 41, ru, woo.

JACKSON COUNTY — Magnolia's West Ranch 1, Musquiz sur, dr 3910 ft.

JIM WELLS COUNTY—Magnolia's Seeligson 8, Los Jaboncillos gr, dr wtr well. Southern Minerals' Hawkins 1, San Diego de Abajo gr, cor 4856 ft.

KLEBERG COUNTY—Cinco's Kellam 1, KT&I subd, sd 1410 ft. Magnolia's Dietz 1, sec 7, dr 5875 ft. Pure's State of Texas 1, dredging canal.

LIVE OAK COUNTY—Bumpus & Burnett's Simmons 1, blk 42, Simmons subd, sp & sd. Chew & Hantho-Nelson's Bell 1, Parks sur, sd 3902 ft for repairs. Hannah's Wedding 1, Haughy sur, dr 2185 ft. H. & H.'s Nichols 1, Henry sur, dr 575 ft. Hantho-Nelson's West 1, Hass sur, ru. Holland's Alamo 2, Giminez sur, ru. Ranco's Fee 1, Poitevent sur, dr 4760 ft. Richardson & Karotkin's Pope 1, sec 148, lcn. Stieren's Lange 2, sec 13, Simmons farm lot subd, ru.

NUECES COUNTY—Andrade's Dunn 1, Martinez sur, lcn; Dunn 2, Martinez sur, lcn. Camp's Wardner 2-A, sec 15, Stratton subd, dk & sd. Coastline's State of Texas 1, tr 320, lcn. Lincoln's State of Texas 1, tr 314, lcn. Phillips' Clark 1, BS&F sur No. 419, skid on. Renwar's McKinzie 1, sec 419, sd to install new draw-works, td 928 ft; Morgan 1, sec 413, sp. Richardson's Chapman 1, sec 43, dr 6165 ft. Rutherford's Stewart 1, sur 418, ru. Texon's Sevier 3, Longoria gr, reperforated 6646-49 ft, 6650-57 ft, 6658-65 ft, flowing g and sw through open tbg, cp 1200 lbs. Union's Brown 1, sec 87, mim; Galladay 1, Agua Dulce gr, cor 6785 ft; Rivers 1, Garcia gr, dr 950 ft; Simmonds 1, Agua Dulce gr, fsg 8021 ft, 9½ in csg set at 5487 ft.

REFUGIO COUNTY—Continental's Scott 1, Reojas sur, sp. Hogan's Kelly 2, Power sur, lcn. Union's Power 9, testing at different levels after pb to 6800 ft snds from 8110 ft.

SAN PATRICIO COUNTY—Cain's Guy 1, sec 70, digging pits. Conroe's Dougherty 1, McGloin sur, dr 3195 ft. Plymouth's Brigham 1, sec 62, dr 4525 ft. Schwab's Lane 1, Cubage & Miller subd, cor below 5310 ft.

VICTORIA COUNTY—Echols' Dunseth 1, Perez sur, sd, woo, td 6030 ft, dst 5938-46 ft, recovered 150 ft 45 gravity oil, 250 ft sw, no pressure. Transwestern's McFaddin 4-A, Vairin sur, cor 4488 ft.

WILLACY COUNTY—Magnolia's Armendiaz 1, Carricitos gr, dr 7885 ft.

LAREDO DISTRICT

DUVAL COUNTY—Circle's Southland 1, sec 5, sd 4377 installing new boilers. Dovre's Hagist 1, sec 265, dr below sur csg. Gillespie's Hamilton 1, sec 85, wocs 101. C. K. Gravis' Frederick 1, sec 344, abd 1056½. Frank Gravis' Schallert 1, sec 239, dr 4350. Hougen's Patton 1, sec 148, dr 5020 ft. Magnolia's DCRC 1, sec 61, abd 3672 ft. Magnolia's Lopez 1, sec 82, dr 5410 ft. Southwood's Nolen 1, on line betwn sur 104 & 106, dr wtr well.

JIM HOGG COUNTY—French's Garza 6, sur 269, wor to rework, 1063 ft. Smith & Hamill's Saunders 1, sec 9, sh 3-A, Las Animas gr, mim.

McMULLEN COUNTY—Cities Service's Morris 1, Perieda sur, dr 410 ft. Jones' Ezzell E-1, sec 24, headed abt 150 bpd oil, si for storage, 1543 ft; Ezzell F-1, sec 29, sp. Reynolds' Shiner 1, sec 82, mir. Rowan and Nichols' Rhode 2, sur 21, dr 405.

STARR COUNTY—Collins' Guerra 1, Santa Cruz gr, sp delayed by lack of wtr. Lowe & Ely's Gonzales 1, por 72, testing in snd 751-86, td 3020 ft.

WEBB COUNTY—Bridwell's Billings 1, sur 36, abd, td 2510 ft. Gilcrease Trafton 1, sur 282, mim.

TEXAS GULF COAST

BRAZORIA COUNTY — Pure's Smith 1, Peach Point prospect, S. F. Austin sur, dr shale 7730 ft.

CHAMBERS COUNTY — Salt Dome and Standard of Texas' State 1, Galveston Bay, woc 1870 ft.

GRIMES COUNTY—Holt et al's Greer 1, Carlos area, P. B. O'Connnor sur, dr clay 95 ft.

HARRIS COUNTY—W. S. Howell's Root 1, Battleground prospect, A. McCormick sur, dr shale 2009 ft.

JEFFERSON COUNTY—J. E. Harwell's State 1, in Gulf of Mexico, dr shale 2300 ft. Glenn H. McCarthy's Broussard Hebert 1, Cheek area, C. Hillibrandt sur, making oil and salt water 7727 ft.

MATAGORDA COUNTY — Pierce Estate's Fee 1, n of Van Vleck, I. & G. N. sur, woc 6200 ft. Sun's Robbins 1, n of Citrus Grove, C. H. Vandeveer sur, dr shale 9040 ft.

TRINITY COUNTY—Gossage and Thompson's Thompson 1, n of Trinity, J. Hickey sur, dr shale 2135 ft.

WHARTON COUNTY—Strake's Strunk 1, Lissie area, L. P. Jennings sur, running electrical logging device 8697 ft.

Welders

The Hobart Brothers Company, Box EW-60, Troy, Ohio, describes in detail in a recently published, well-illustrated bulletin, the various types of arc welders and recommended accessories.

Nickel Alloy Steel

The International Nickel Company, Incorporated, 67 Wall Street, New York, recently published bulletin U-3 entitled "Nickel Alloy Steels for Hand Tools," which describes the use of alloy steel for hand tools and small power tools. Several tables and mechanical property charts are given in this booklet.

WANTED: For apprenticeship in producing oil company, graduate geologist and petroleum engineer, also production men with at least ten years experience. Submit qualifications and references, stating salary desired. **Petroleum Heat & Power Company of Louisiana, Inc., Old Calcasieu Bank Building, Lake Charles, Louisiana.**

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No other lantern answers the need of Pipe Line Men, Gaugers and Pumpers as does Ecolite 50S. It's easy to carry and use. Throws a very bright beam—is perfectly safe in presence of inflammable gases and vapors and comes recommended by Underwriters' Laboratories.

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Analyses of oil field brines, cores, gas, oil, and minerals. Field gas testing. R. H. Fash, Vice-President; Long distance 138. 328½ Monroe Street, Fort Worth, Texas.

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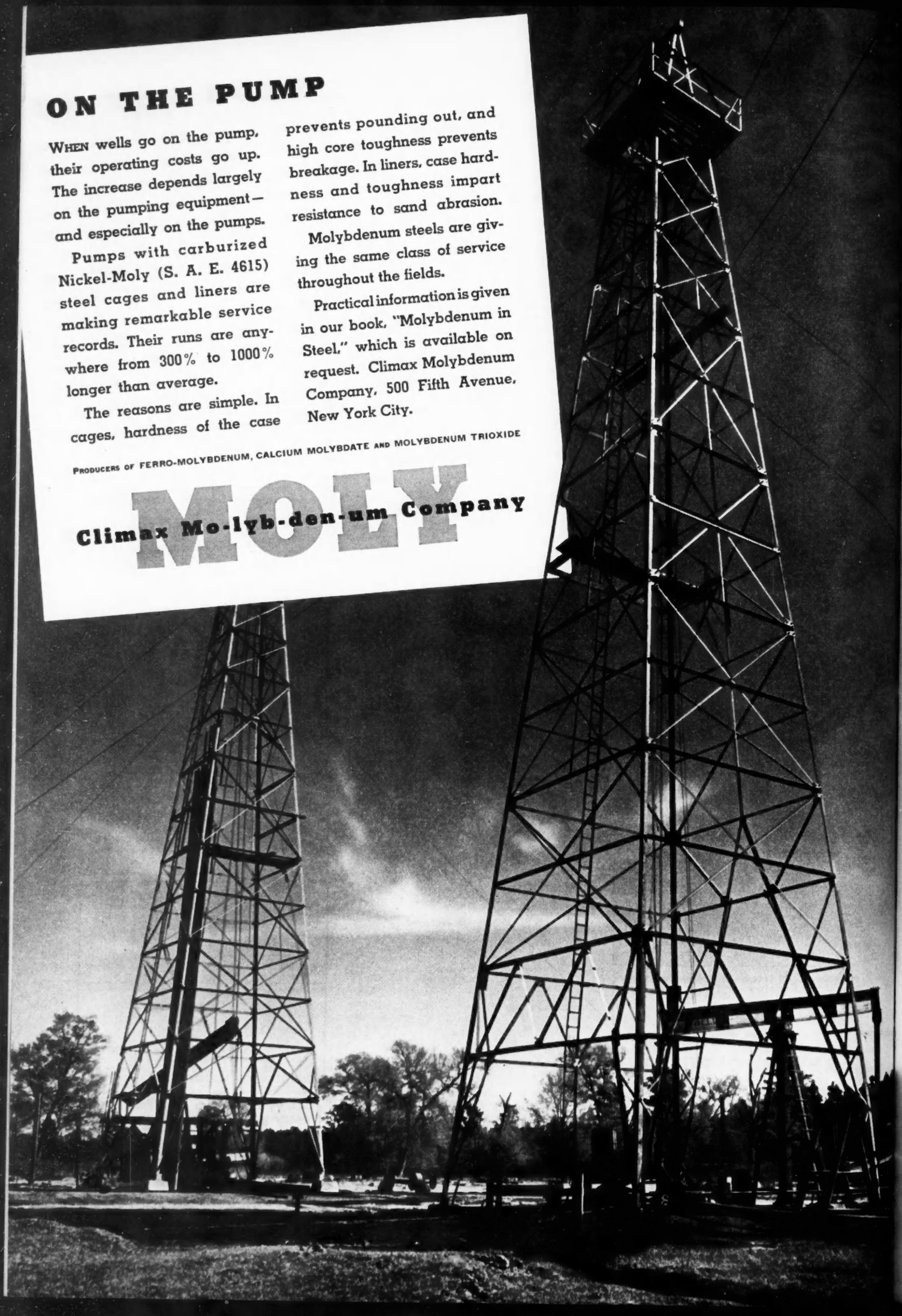
County Ownership & Oilfield Maps
ZINGERT FORT WORTH ZINGERT
OIL MAP COMPANY



ON THE PUMP

WHEN wells go on the pump, their operating costs go up. The increase depends largely on the pumping equipment—and especially on the pumps.

Pumps with carburized Nickel-Moly (S. A. E. 4615) steel cages and liners are making remarkable service records. Their runs are anywhere from 300% to 1000% longer than average.

The reasons are simple. In cages, hardness of the case prevents pounding out, and high core toughness prevents breakage. In liners, case hardness and toughness impart resistance to sand abrasion.

Molybdenum steels are giving the same class of service throughout the fields.

Practical information is given in our book, "Molybdenum in Steel," which is available on request. Climax Molybdenum Company, 500 Fifth Avenue, New York City.

PRODUCERS OF FERRO-MOLYBDENUM, CALCIUM MOLYBDATE AND MOLYBDENUM TRIOXIDE

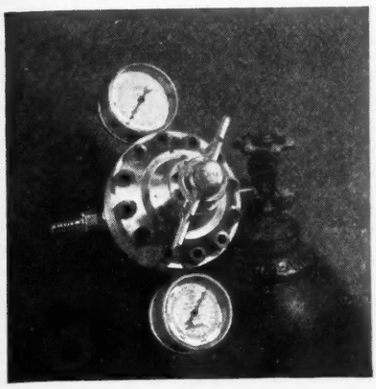
MOLY

Climax Mo-lyb-den-um Company

NEW PRODUCTS FOR THE FIELD
Machinery • Tools • Equipment

PRESSURE REGULATOR
Victor Equipment Company

Victor Equipment Company, 844 Folsom Street, San Francisco, California, recently introduced to the industry the "Gas-O-Dome" regulator, which has been designed for working pressure ranging up to 5000 pounds and for primary pressures exceeding 5500 pounds. The device can be furnished for remote control operation which is of interest to many laboratories.



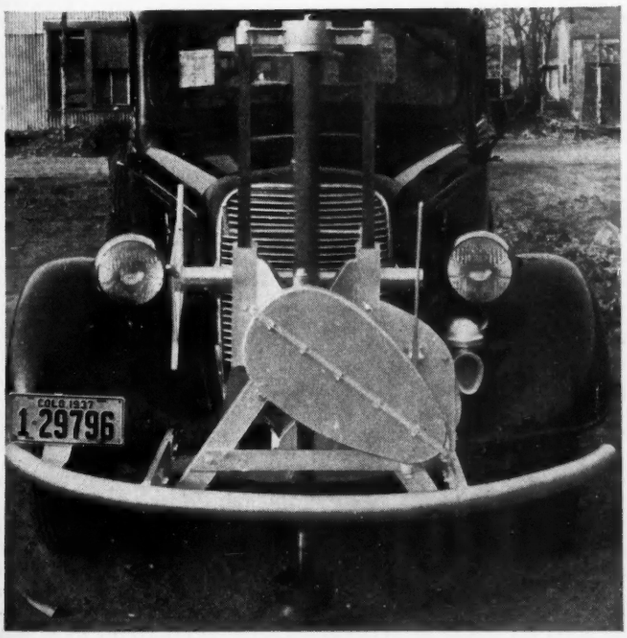
Victor "Gas-O-Dome" Pressure Regulator

The delivery pressure adjustments are accurate over the entire pressure range and within fractions of a pound. The diaphragm arrangement is full floating between equalized gas pressures. Particularly for these high delivery pressure ranges, the elimination of springs and the even distribution of the loading pressure, results in perfect delivery pressure accuracy and maintenance. The working mechanism is of extreme simplicity and sturdiness to adequately meet the most severe operating requirements.

SHALLOW-HOLE DRILL
George E. Failing Supply Company

George E. Failing Supply Company, Enid, Oklahoma, recently designed and placed on the market a drill mounted on the front of a light truck, which is principally designed for drilling geophone holes, and which in some areas will replace hand augers for this type of work.

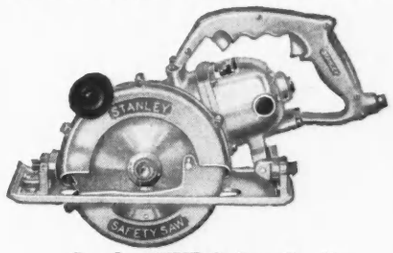
This drill has a 3-foot screw feed, triple V-belt drive, rugged frame construction and operates at crank-shaft speed. With the drill is a cork-screw spiral built up with special hard surface metal to resist heat and wear and which eliminates the use of a pump for circulation on these shallow holes. (Geophone holes are ordinarily from 1 to 3 feet deep and from 3 to 4½ inches in diameter.)



Failing Shallow-Hole Drill

ELECTRIC SAFETY SAW
Stanley Electric Tool Division

Stanley Electric Tool Division, The Stanley Works, New Britain, Connecticut, has placed on the market a new electric saw, known as "W7 Safety Saw." Compact, light in weight, powered and cooled for continuous operation, this saw has a new style duplex handle for easy one-hand operation. The forward grip gives a balance that is comfortable for sawing when the work is held in one hand. The switch can be operated independently by either of two triggers according to grip used.



Stanley "W7 Safety Saw"

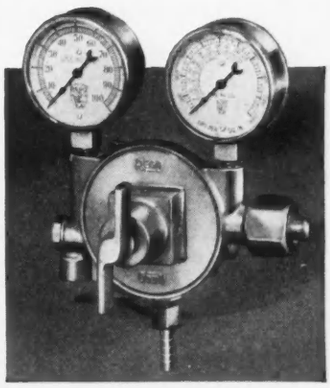
Only one adjustment is necessary for depth of cut. Saw blade is covered at all times. Housing is heat-treated aluminum alloy. Gears are heavy-duty ground heat-treated alloy steel worm and over-size bronze worm wheel which runs in a large grease chamber, assuring constant lubrication and smooth operation.

The saw is packed in metal carrying case with one combination rip and cross-cut blade, ripping gauge, wrench, lubricant, and heavy rubber-covered three-wire cable.

GAS REGULATOR
The Bastian-Blessing Company

The Bastian-Blessing Company, 240 East Ontario Street, Chicago, recently announced its latest product for precision gas regulation, known as the Regolator. This two-stage regulator is built into one compact, streamlined forged brass body. Its application covers the accurate control of oxygen, acetylene, hydrogen, nitrogen and other high-pressure gases.

The Regolator combines a positive, direct first-stage nozzle type regulator and a second-stage inverse or stem type regulator. This patented combination of the two types of regulators neutralizes the characteristic discrepancies of each and results in a perfectly constant flow of gas, regardless of cylinder pressure fluctuations from full to empty.



Bastian-Blessing Regolator

As claimed by the manufacturer, one of the outstanding design developments found only in the Regolator is a new triple filter cartridge type strainer. Its filtering area is at least 17 times as great as that contained in ordinary regulators. It efficiently removes rust, dust and dirt which are the common causes of regulator ailments. It also serves to dissipate the heat of compression caused by quick opening of an oxygen cylinder valve, and therefore, eliminates the possibility of seat ignition.

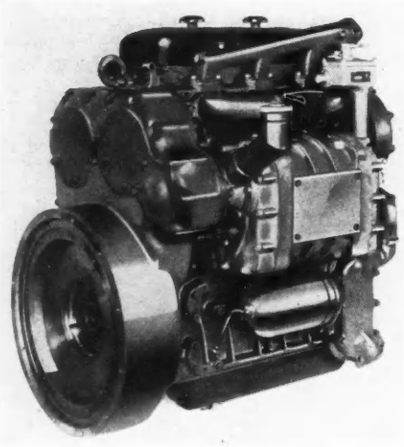
The Regolator is well adapted to welding, cutting, silver-

soldering, brazing, metal-spraying and many other high-pressure gas control applications. Better results are achieved in these processes because the flow of gas remains constant—torch flames cannot go oxidizing or carbonizing. Frequent adjustments of the Regolator are unnecessary and much valuable operator time is saved.

DIESEL ENGINES

General Motors Corporation

Diesel Engine Division, General Motors Sales Corporation, Cleveland, Ohio, January 19 announced mass production and sale of small, light-weight, two-cycle Diesel engines for all purposes. Heretofore this company has limited its Diesel activities to building engines of 600 to 1200 horsepower, notably engines used on Diesel-electric high-speed trains. The new engines extend this line in varying sizes down to a one-cylinder, 22-horsepower model. Also the company plans to produce "packaged power" units, consisting of small engines and generators which may be set up quickly for small operations.



General Motors Two-Cycle Diesel Engine.

The engines will be built in three factories at Detroit, Cleveland and LaGrange, Illinois. The new factory of the Detroit Diesel Engine Division was placed in operation this week simultaneously with Motors announcement of enlarged Diesel activities. The Detroit factory will produce the smaller engines with from 22 to 160 horsepower and with from 1 to 6 cylinders.

The Cleveland Diesel Engine Division (formerly Winton Engine Manufacturing Corporation) will manufacture a full line of medium-size engines ranging from 200 to 400 horsepower, and a new engine factory at Electro-Motive Corporation's Diesel locomotive plant at LaGrange will be in operation within a few months for the manufacture of the larger engines.

In connection with the Detroit factory, a new General Motors Diesel Test Laboratory, the largest and most completely equipped laboratory in the world for exclusive Diesel study has been opened. The laboratory building is distinctively modern and adjoins the new Detroit factory.

OIL COMPANY

STOCK FORMS

for Accounting and Field Reporting

We have published a completely illustrated catalog of these forms. If you have not received your copy we will send you one upon request.

GULF PUBLISHING CO.

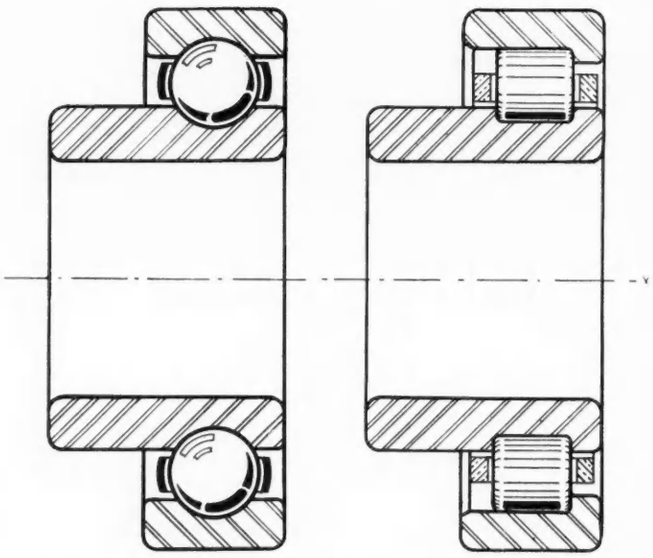
3301 Buffalo Drive **Houston, Texas**

BALL AND ROLLER BEARINGS

Norma-Hoffmann Bearing Corporation

Norma-Hoffmann Bearings Corporation, Stamford, Connecticut, is now supplying two new types of precision bearings—the WIR series of ball bearings and the WIR-L series of roller bearings.

The distinctive feature of these new series is the use of a wide inner ring of double-row bearing width, in combination with an outer ring of single-row width. They have been designed primarily for opposed mounting in electric motors and similar equipment. The wide inner ring insures a better sealing on the shaft than the standard single-row ring. In many cases also it avoids the necessity for threading the shaft and applying lock nuts or other locking devices. This elimination of threads permits a larger shaft extension diameter for a given bearing bore and also avoids weakening of the shaft by threading. The WIR ball bearings are available in medium metric series from 25 to 55 m/m bore. The WIR-L cylindrical roller bearings with one-lipped outer ring are available in the medium metric series, from 30 to 130 m/m bore.



Norma-Hoffmann WIR ball and WIR-L roller bearings.

PUMP MANIFOLD VALVE

American Iron & Machine Works Company

American Iron & Machine Works Company, Oklahoma City, Oklahoma, announces a new pump manifold valve, which, according to the manufacturer, affords increased efficiency and safety.

American Pump Manifold Valve

The valve is designed to be installed next to or as near the air chamber as possible. It has an easy opening, fast threaded screw to allow quick opening and closing, and is constructed with a lock nut so valve can be locked when the valve is closed, open or at any position desired. The valve can be opened to the desired flow and locked, a feature which allows the circulation and mixing of mud at the same time. A ball-bearing swivel joint is used in center of control stem so that valve itself does not turn and cause friction against gritty fluid when seating.

The valve is packed so that stem is automatically sealed when open, and is so constructed that inner stem gland may be repacked under pressure in open position. It can be repaired without removing from line; if steel seat becomes worn it can be replaced without discarding entire valve.

This Week with the Industry's EQUIPMENT SUPPLIERS

Worthington Acquires Interest in Moore Steam Turbine Corporation

Worthington Pump and Machinery Corporation, Harrison, New Jersey, has acquired an interest in Moore Steam Turbine Corporation, Wellsville, New York. This association adds to the list of products sponsored by Worthington Pump and Machinery Corporation an extensive line of steam turbine equipment and in turn provides Moore Steam Turbine Corporation with the benefit of added resources in matters pertaining to application and metallurgy.

In the formal announcement of this acquisition, C. E. Searle, vice president of Worthington, stated, "It is the determination of both organizations to continue the steady progress of development which has characterized the policy of Moore Steam Turbine Corporation throughout its existence. The fine reputation which the company's products enjoy in many industries, including the petroleum, chemical, public utility and shipbuilding, is based upon a standard of quality which will be maintained."

Union Wire Rope Corporation Makes Cutlip Assistant Manager

Union Wire Rope Corporation, Tulsa, Oklahoma, recently appointed H. R. Cutlip as assistant to H. R. Gruber, manager of oil country sales.

Cutlip has been the company's division sales manager for Texas, with headquarters at Dallas, but will now have his headquarters at 601 Beacon Building, Tulsa, which is the company's headquarters for oil country sales.

Larkin Packer Company, Inc., St. Louis, Mo., held its annual sales meeting Monday and Tuesday, December 27 and 28. The meeting proved interesting and instructive, a wide range of topics being discussed, and the sales and sales promotional program for the coming year was submitted for discussion and general comment.

Monday night there was a dinner at the Jefferson Hotel, where entertainment was provided. In addition to the visiting salesmen there were 20 office employes at the dinner.

One hundred and thirty-six employes of Larkin Packer Company posed for the photograph below. The company employs 14 salesmen and 6 warehousemen.

Crane Appoints Hendrickson Oil Sales Department Manager

Crane Company, 836 South Michigan Avenue, Chicago, announces the appointment of R. A. Hendrickson, in the employ of the company for 20 years, as manager of the oil sales section.

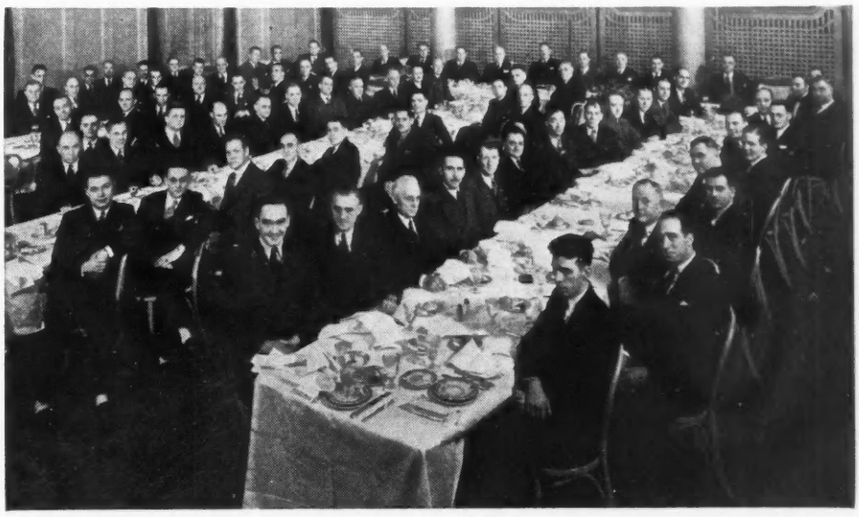
For many years Hendrickson had charge of the design of steel products to meet the developing conditions of increasing pressures and temperatures, particularly in the oil industry. Supplementing this, he has been a special engineer in the oil sales section for the last three years, working principally on the solution of problems in this field.

Mid-Continent Supply Company Opens Wichita Falls Store

Mid-Continent Supply Company, Fort Worth, has opened a new store at Wichita Falls, Texas. This new branch will be under the supervision of O. B. Albritton, district manager, and the personnel includes: J. E. Snoddy, sales engineer; J. E. Everroad, sales engineer; W. E. Staples, Diesel service engineer, and R. M. Flippo, field salesman. The company also has district offices at Wichita Falls.

Pittsburgh Meter Tenders Dinner To Officers and Department Heads

Pittsburgh Equitable Meter Company and Merco Nordstrom Valve Company, Pittsburgh, Pennsylvania, headed by Colonel W. F. Rockwell,



Officers and department heads of Pittsburgh Equitable Meter Company and Merco Nordstrom Valve Company, gathered for dinner at the Pittsburgh Athletic Club.

tendered a dinner to 80 officers and department heads of both companies, December 27, at the Pittsburgh Athletic Association.

After an address by Colonel Rockwell, in which he reviewed the progress of the two companies during the past year and the prospects for the future, short talks were made by F. B. Wolfe, vice president; E. W. Meyers, treasurer; Capt. A. E. Higgins, vice president; Walter Parker, factory manager; Carl Dixon, shop superintendent; Allen D. MacLean, chief engineer, and W. H. Newbaker, purchasing agent, and others.

General Electric Opens New Building In Los Angeles

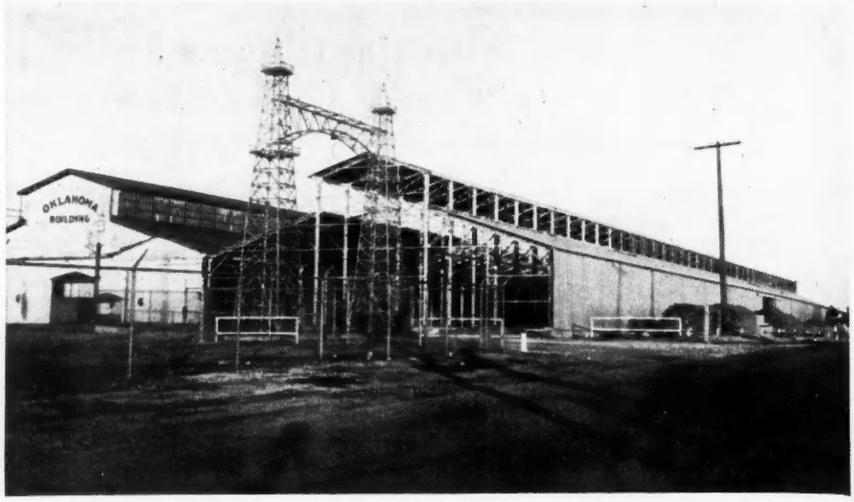
General Electric Company, Schenectady, New York, recently occupied a new $700,000 building in Los Angeles, at 212 North Vignes Street. In addition to housing the district sales offices of the company, the new building will be the headquarters of the Los Angeles office of the General Electric appliance and merchandise department, and the

General Electric Contracts Corporation, as well as the Los Angeles office and warehouse of the General Electric Supply Corporation, the company's wholesales distributing subsidiary.

Designed to meet the full needs of a modern industrial enterprise, the structure is unusual in many respects of construction. The heating is accomplished entirely by the use of electricity and represents a connected load of 589 kilowatts. The entire system is thermostatically controlled and operates in conjunction with the lighting system to utilize all the heat generated.

An advanced parallel to that of the heating system has been made in the building lighting installation. The newest developments in illuminating practice have been used. Many of the lighting fixtures throughout the building are of aluminum, treated by a recently perfected process which provides more efficient lighting. In other areas of low ceilings the new silvered-bowl lamps are used.

The elevator lobby and the customer section of the supply corporation are lighted by Holophane control lens units which provide an evenly-distributed direct light of high intensity. All warehouse areas are lighted to 10-foot candles with wire capacity available to double this intensity.



At top is the new $40,000 exhibit building for the International Petroleum Exposition, which was formally christened in honor of the $250,000 new building program in progress on the grounds, in preparation for the May 14 to 21 oil show. Below, left, Alf Heggem, vice president of the exposition, is preparing to break the champagne bottle, while Frank J. Hinderliter, vice president of the exposition, and Wm. B. Way, general manager, look on.

PETROLEUM DICTIONARY

By **HOLLIS P. PORTER**

Member of American Society of Mechanical Engineers, American Petroleum Institute.

This work grew out of a demand for some source of definition for the terms used by the petroleum industry. It contains over 3,000 definitions of words used constantly by all phases of the petroleum industry. It was published in 1936 and has found its way into engineering department, legal departments and land departments of producing concerns, as well as to the desks of executives of the petroleum industry.

Manufacturers also find it valuable for reference. Advertising agencies find it a valuable addition to the library.

253 pages, 6 x 9, cloth bound.
Price Postpaid, $3.00

Send order to

THE GULF PUBLISHING CO., P. O. Box 2811, Houston

Union Wire Rope Corporation Shows Moving Picture

Union Wire Rope Corporation, Kansas City, Missouri, recently completed a new talking moving picture depicting in detail the complete processes of drawing high-carbon rope wire and fabricating wire rope, as produced by the company.

This interesting and instructive picture is designed for presentation before groups in the building and construction, mining, logging, oil and other industries in which wire rope is extensively used.

Tulsa Show Will Have Seismograph Exhibit

Luther White, manager of the land and geologcial department for the Deep Rock Oil Company and chairman of the exploration committee for the International Petroleum Exposition, has announced that the latest developments in serial photography and seismographic equipment will be displayed by his committee during the oil show, from May 14 to 21, at Tulsa.

Dowell Makes Addition to East Texas Personnel

Dowell Incorporated, Kennedy Building, Tulsa, has obtained the services of Karl L. Flanders, for several years connected with Frick-Reid Supply Corporation in East Texas, for its East Texas staff in the paraffin-solvent division. Flanders will make his headquarters in Longview.

Bucyrus-Erie Changes Address

Bucyrus-Erie Company, South Milwaukee, Wisconsin, recently announced the change of its offices from 989 Folsom Street to 390 Bayshore Boulevard in South Milwaukee.

Squeaks from the Bull Wheel

The Life of a Poet

"A little more patience, Miss Johnson. The day will come when people stopping at your door will say: 'Here lived the poet Smith . . . '"

"Is that so? If you don't pay the rent right now, they will say it tomorrow!"

Evidence

Did you see the shot that was fired?

No, I only heard it.

That is not sufficient evidence. You may retire.

As the witness left the stand and while his back was turned to the judge he laughed out loud. At once the judge recalled him for contempt of court.

Did you see me laugh?

No, but I heard you.

Insufficient evidence, your Honor.

Fast Growth

"P'taters is good this morning madam," said the market gardener, making his usual weekly call.

"Oh, are they?" retorted the customer. "That reminds me. How is it that those you sold me last week were so much smaller at the bottom of the basket than at the top?"

"Well," replied the man, "p'taters is growin' so fast now, by the time I get a basketful dug, the last ones is about twice the size of the first."

Play Ball

"How many children in the family?"

"Four—two singles and a double."

Convenient

He: "When is your birthday?"

She: "When will it be most convenient for you?"

"Jessye" Next

Three weeks after Jessie reached boarding school she began signing her letters "Jessica." Brother Tom didn't like it. He replied:

"Dear Jessica: Dadica and Momica have gone to visit Aunt Lizzica. Uncle Samica is buying a new machine, but doesn't know whether to get a Chevica or a Fordica. The cowica had a calfica, and I was going to call it Nellica, but changed it to Jimica because it was a bullica. Your loving brother Tomica."

Realistic

"Do you think you can make a good portrait of my wife?"

"My friend, I can make it so lifelike you'll jump every time you see it."

Prevention

"Hi, there, you; didn't you tell me you never got tired?"

"Dat's right, boss, Ah allus stops an' rests befo' Ah gets tiahd."

No Worry

City Girl: "What is this stuff that I've just picked up?"

He: "Wow! that's poison ivy!"

City Girl: "Don't get excited. I'm not going to eat it."

Either Way

He married Helen, Hell ensued.
He left Helen, Helen sued.

Wait a Few Weeks

The old commercial traveler was relating his experiences to a young man.

"And don't forget, never try to sell an encyclopedia to a bride."

"And why not?"

"She always thinks her husband knows everything."

Discreet Restraint

"Did you ever think of telling your wife to quit driving from the back seat?"

"On such occasions there's plenty of material for argument, without adding complications."

A Sudden Reminder

A somewhat depressed group was returning home from a football game when one man broke the gloomy silence with the remark:

"Poor game! Poor game! Never saw a more uninteresting one in my life."

A bored-looking member yawned and began fumbling in his pockets. Then he sprang to his feet, exlcaiming, "Great Scott!"

"What's up?" somebody asked "Lose your watch?"

"Watch!" cried the football fan. "I've left my wife asleep in the grandstand, and she's got my return ticket."

Too Long

"I am having a hard time fixing up an entertainment for the printers' picnic."

"Why?"

"When I proposed a 100-yard dash one of the members said. 'There ain't no such thing.'"

The Philanthropist

"How can you talk to me like that," she wailed, "after I've given you the best years of my life?"

"Yeah?" returned the husband, unimpressed by her emotion. "And who made 'em the best years of your life?"

Revealing!

"A woman's physical charms are her chief weapons in the battle of love."

"Rest assured, dearie, that you'll never be arrested for carrying concealed weapons."

Modern Reasoning

Father (to young son sucking his thumb): "Hey, boy, don't bite that thumb off. You may need it when you get old enough to travel."

Now I Lay Me

A little girl, attending church for the first time, was amazed to see all the people suddenly kneel, and asked her mother why they were doing it. "Hush," the mother replied, "they're going to say their prayers."

"What! With all their clothes on?"

BUILT TO "TAKE IT"!

These Stanley Screw Drivers are built for heavy duty work, made of finest selected steel, oil tempered from cross-ground tip to tang. Handle is securely anchored to the blade. In materials and workmanship, these drivers have no equal.

WRITE FOR BOOKLET S30 FREE ON REQUEST

No. 1006 "Stanloid"—Combines a tip and bar of highest quality screw driver steel, locked into a transparent "Stanloid" composition handle that is practically unbreakable, and unaffected by oil and water. Four sizes: 4, 6, 8 and 12 inch blades.

No. 1007 "Stanloid"—Similar to the 1006, except that blade is square to take a wrench. Same sizes.

No. 1001 "100 Plus"—The strongest wood handled screw driver made. Forged blade, oil tempered the entire length. Heavy wings on tang of blade prevent it from turning in handle. Handle is made from finest grade of preshrunk hickory and capped with hard leather washer to withstand pounding. Seven sizes: 3, 4, 5, 6, 8, 10 and 12 inch blades.

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NEW BRITAIN, CONN.

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